The Builder.

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The Architecture of our large Provincial Towns.

VIII.—DERBY.

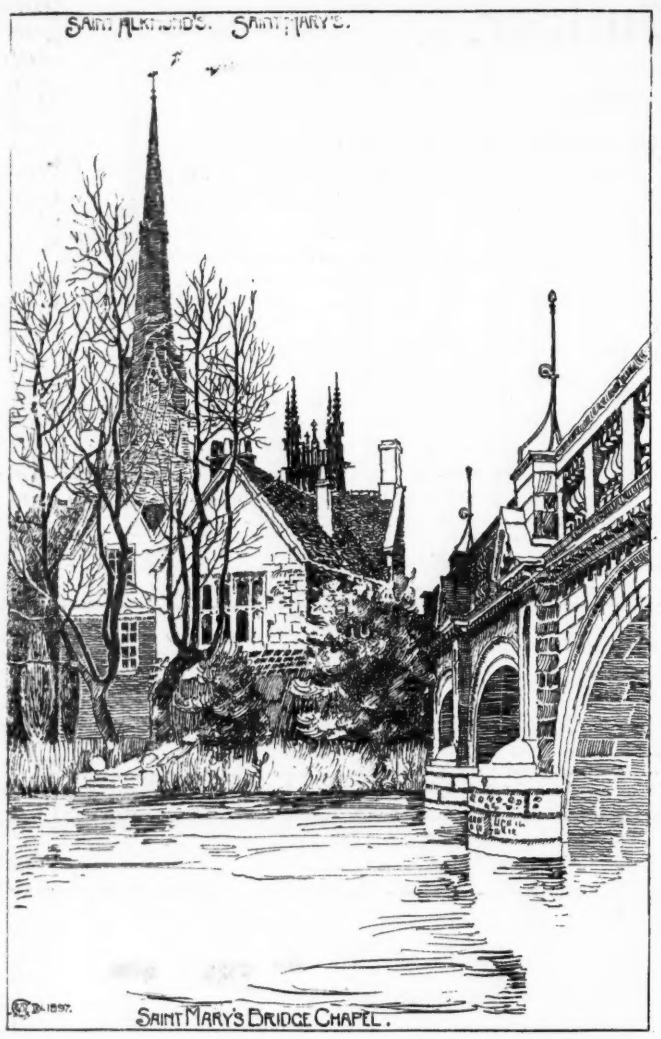
DERBY is pleasantly situated in a valley on the western banks of the Derwent, from which the town spreads out towards the east, the land gradually rising towards the outskirts of the town, so that the lie of the land is somewhat undulating.

The existence of Derby has from very ancient times been largely dependent upon manufactures. As far back as the days of King John, Derby enjoyed the exclusive privilege of dyeing cloth, whilst the first silk mill erected in England was built here about the year 1718 by Mr. John Lombe, who procured in Italy, by means of bribing two woodmen to accompany him to England, drawings and models of the silk machinery then in use in that country, for which he took out a patent. The factory stands on an island in the Derwent, and is built on oak piles driven close together and supporting the masonry of the building.

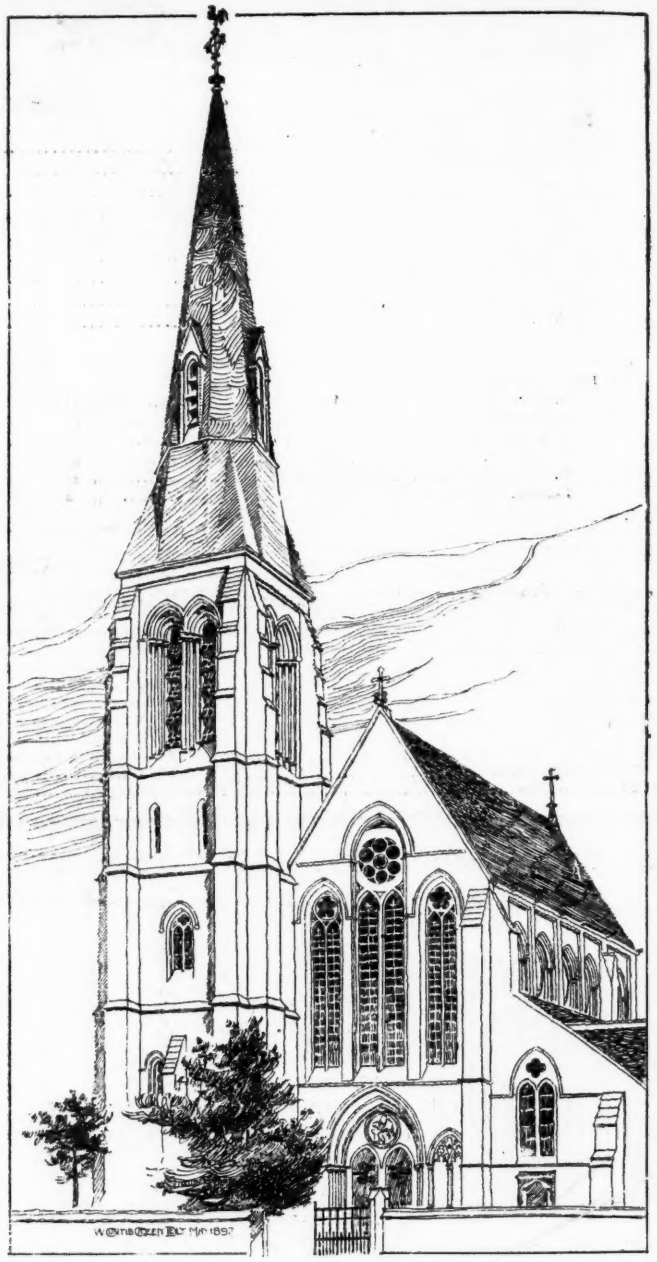
In 1756 Mr. Jedediah Strutt invented and introduced the Derby Ribbed Stocking Frame for which he obtained a patent. The porcelain manufacture was established in 1763, and the first fire-proof mill for spinning cotton was erected in Derby in 1793. The eighteenth century, therefore, was a time of great prosperity in Derby, and the town is rich in examples of domestic architecture of that date. The modern prosperity of Derby depends principally upon the Midland Railway Company, and the iron works of several important firms. One is therefore prepared to expect in Derby what, indeed, the visitor speedily discovers—that although the town can be said to possess no one building of any transcendant architectural merit, it is nevertheless a place where a few days may be both profitably and pleasantly spent by the student and lover of architectural art.

St. Peter's Church.

The town is of very ancient origin—how ancient it is difficult to say—although a Royal mint was established in Derby under the Saxons at least as early as the time of Athelstan; but, nevertheless, there is very little ancient architecture dating farther back than the seventeenth century. The oldest existing work is probably to be found in the church of St. Peter, which, though chiefly of fourteenth century date, seems to have some fragments remaining of Norman transitional work. The church is much



SAINT MARY'S BRIDGE CHAPEL.



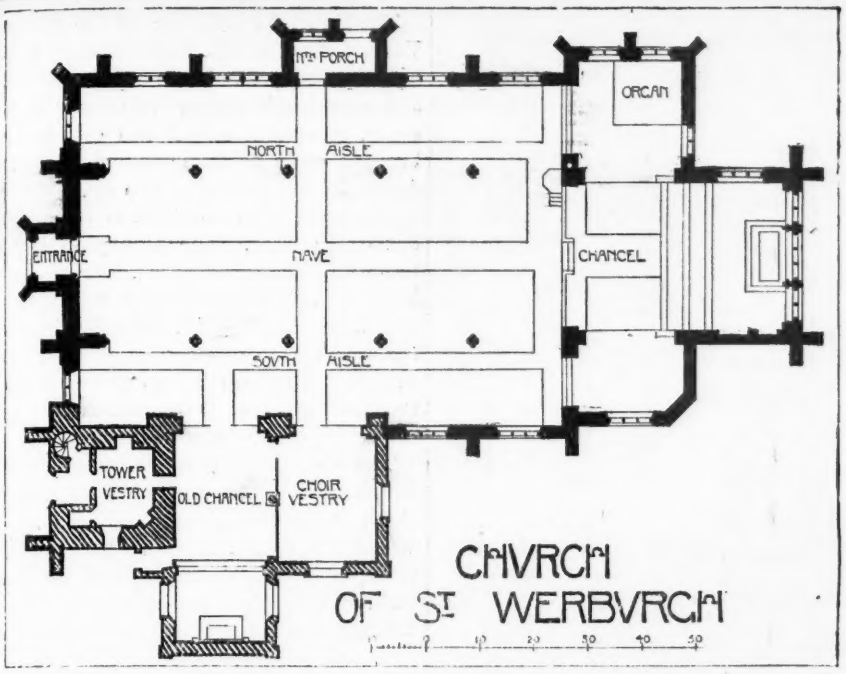
St. Andrew's Church. (Sir G. Scott.)

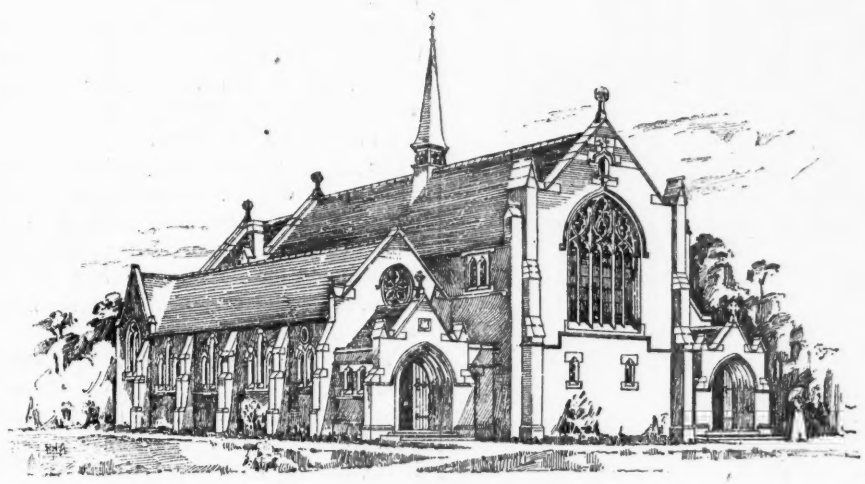
dilapidated, and even in a dangerous state, but is undergoing restoration or rebuilding, the south aisle having been already rebuilt and the north aisle being at the present moment in the builder's hands. There is much that is quaint and curious in this church, as, for example, the remarkable distortion of the design for the belfry stage on the west face of the tower, apparently original, but of which the reason is not now evident. It looks as if a triple window had been intended, but two openings only of the three have been executed, and the middle one is narrower than the other. The cuspless reticulated tracery of the rebuilt south aisle is also peculiar, though possibly, as in many other cases, it is the restoration of mutilated remains rather than of the original design.

Very quaint and interesting also is the little Bridge Chapel, dedicated to St. Mary, situated at the west end of the remains of the old pack-saddle bridge over the Derwent. The old bridge, of fourteenth-century date, was taken down in the year 1789, so that the chapel now looks rather stranded, the west end being masked by houses, and the south and east sides being enclosed by the yard of a boiler factory. It is nevertheless interesting, as being one of the very few English bridge chapels in existence and still in use for religious services, under the offices of the clergy of St. Alkmund's.

Of All Saint's Church, the mediæval work remaining is the tower, 174 ft. high (see lithograph), erected between 1509 and 1527, the master mason being one John Otes; and although the design is a little open to question, and somewhat coarse in detail, it reminds one of the churches at Taunton and Wrexham, and of Magdalen College, Oxford; all of which it exceeds in height, though it may be inferior to them in design. The principal benefactor of the tower was Robert Liversedge, a wealthy dyer, who also made important bequests to the parish church of St. Peter; these are now known as the Liversedge Trust, from which were erected the Liversedge Almshouses—one of the picturesque features of the town, and to be found in the London-road. The body of the church of All Saints was erected in 1725 from the designs of James Gibbs, the architect of St. Mary-le-Strand, St. Martin's-in-the-Fields, and other well known works. It goes without saying, therefore, that it is a good example of English Renaissance; it is based on the Roman Doric order. The interior is particularly light, elegant, and spacious, divided into nave and aisles of the same height, covered with intersecting barrel vaults. The chancel is enclosed by some very fine wrought-iron screens, which are said to have cost the sum of 500*l.*, and were the handicraft of a clever smith named Bakewell. Amongst the monuments in the church may be noted that of William, Earl of Devonshire, who died in 1628, and his countess, and also that of the celebrated Elizabeth, Countess of Shrewsbury, better known as "Bess of Hardwick," who was the builder of the three magnificent mansions, Chatsworth, Hardwick, and Oldcotes, and died in 1607. In the south-east corner of the church are the fine monuments of the Cavendish family, and there are several other items of interest, including examples of wood carving, and a fine incised alabaster slab.

St. Werbergh's church has recently been rebuilt from the designs of Sir Arthur Blomfield (see lithograph), the former erection having been put up in the eighteenth century. The tower is the only part remaining of the mediæval church, but the old chancel of the eighteenth-century church has been left as a side chapel eastward of the tower. The axis of the church now stands north and south instead of, as formerly, east and west. A good chancel screen in oak, and stalls, are now being made and will be presented to the church by Mr. W. R. Smith, a former churchwarden, as a memorial to his father and mother, and the tower will, before long, be repaired and heightened by an additional belfry stage. At present it looks rather dwarfed by the importance of the new church erected from Sir Arthur Blomfield's designs. The remaining churches have not





St. Augustine's Church. (Messrs. Naylor & Sale.)

even a vestige of old work, but are entirely modern, though not on that account unworthy of examination.

St. Andrew's Church was erected, from the designs of the late Sir George Gilbert Scott, to accommodate the large population residing in the neighbourhood of the Midland Railway works. The tower, with broach spire at the west end of the north aisle, is a very happy composition. The tower contains a fine peal of eight bells.

St. Alkmund's Church, dedicated to Alkmund son of Alured, King of Northumbria, was in mediæval times a famous pilgrim shrine. The old church was demolished in 1844, and the present church erected with its tower and spire. The design of the church is in the Decorated style, and, though somewhat hard, is good for the time at which it was built. This church was the burial-place of Joseph Wright, the painter (known in artistic annals as "Wright of Derby"), whose monument is here preserved.

St. Mary's Catholic Church (see lithograph), is a good specimen of the elder Pugin's work, and was completed in 1839. There is a good deal of Continental character about the design, produced by the capless piers to the nave, the apsidal chancel, the lofty internal proportions, and other features, but the detail generally is based on Perpendicular work. The interior is very pleasantly decorated in colour, and is in striking contrast in its brightness and cheerfulness to the dim religious light of its near neighbour, St. Alkmund. At the east end of the south aisle is a small chapel of Our Lady of Dolours, and north-east of the church is a morning chapel, with the sacristy east of the high altar. The organ is placed in the western gallery, and good musical services are given with full orchestra. The churches already described, although embracing the most important architecturally, by no means exhaust the list of churches of Derby, which is still being added to, the church of St. George, of which at present only the chancel and vestry have been erected, giving promise of a modest and simple but thoroughly good and satisfactory design of early character in red brick, while one of the latest additions, now in course of erection from the designs of Messrs. Naylor & Sale, is the church of St. Augustine (of which a sketch is given). This has advanced as far as the level of the sill of the west window and crown of the nave arcade, and is being built in red Loughborough bricks, with Coxbench sandstone dressings, and Westmoreland slate roofs.

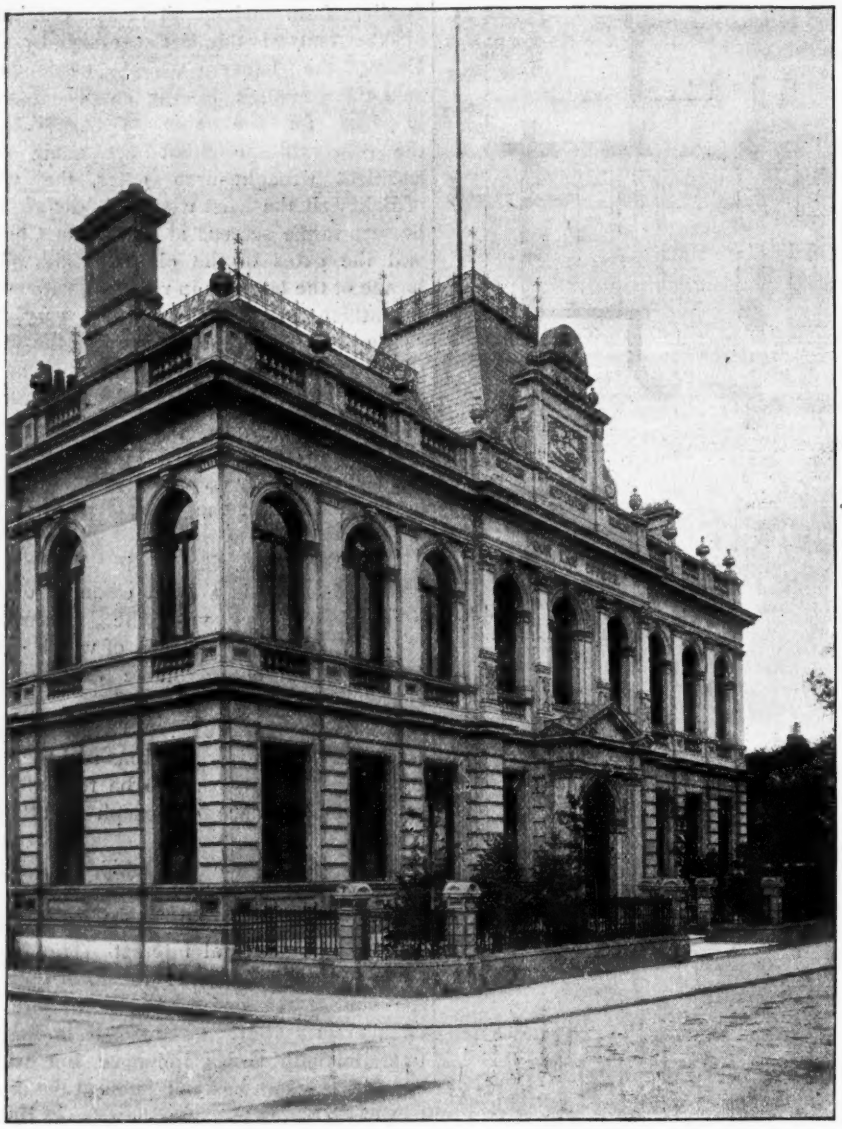
The Nonconformists also are well supplied with chapels, foremost amongst which in architectural interest may be placed the Baptist Chapel in St. Mary's Gate. This was erected in 1750 by one of the Osborne family, whose seat it continued to be until it passed to the Bateman family, from whom it was purchased at the end of the last century by Mr. Evans, the banker, whose descendants sold the premises to the chapel trustees in 1841 for the sum of 4,000*l*. In the courtyard in front are some very excellent wrought-iron gates, the work of Bakewell, the artist whose handicraft is to be seen in the screens at All Saints Church and the gates of the old silk mill. The façade of the house is in red brick with stone Corinthian pilasters, and some very fine carving in the pediment containing the arms of the family, and their crest, a pelican in piety. Inside there are some beautiful carved doors, and even the rostrum contains some very excellent carving, apparently of eighteenth century date, and probably made up from parts of the original work of the house.

The Wesleyan Chapel in King-street, erected in 1841, is a good example of the time when Greek was the fashionable architectural mode, a period of which there are several highly creditable examples in Derby.

In Friargate the Unitarian Chapel, built in 1647, with some later additions and the date 1698, is picturesque, and to be remembered as the burial place of Joseph Strutt, the donor of the arboretum. This is the oldest Nonconformist place of worship, and originally belonged to the Presbyterians.

Several of the public buildings possess points of architectural interest. The Town Hall (see lithograph), was erected in 1842, on the site of the one destroyed by fire on October 21, 1841. The detail is largely tinctured with Greek influence, but where Greek precedent has not sufficed the architect has resorted to a modification of Italian Renaissance, supplemented by a certain amount of originality. The exterior is certainly not very attractive, but the Council Chamber is a fine room, 55 ft. long, 35 ft. wide, and 24 ft. high, lighted principally from the top. The Corporation possesses several ancient and interesting insignia, including mace, mayor's chain, town seal, and other antiquities. The Town Hall is on the south side of the Market-square, which in itself is an epitome of the architecture of Derby.

The Assembly Room at the north-east corner of the Market-square, where Full-street enters, was erected in 1763, and is a good example of eighteenth century Renaissance work; the front only of the building being of stone, the sides and rear of red brick, without much attempt at architectural treatment. The pediment is enriched with a good piece of carving in bas-relief representing musical instruments. Several of the old houses in the Market-place have excellent interiors and fine ceilings, the room formerly known as the "Great Room in the Market-place" being quite of historical interest from its connexion with the Stuarts. On the west side of the Market-place Messrs. Samuel Smith & Co.'s bank is one of the most satisfactory designs amongst the architecture of Derby. The detail is of the type usually known as "Neo-Grec," the ground story being carried out in pink granite with Doric columns, the entablature in grey granite, and above the ground floor two stories of what appears to be Derbyshire sandstone. At the south-east corner is quite a different example of modern architecture, the Royal Oak Hotel, a very good design



The Poor Law Offices. (Mr. E. Ryley.)

carried out with Elizabethan detail, and the upper part pleasantly grouped with half-timber gables and cut plaster, the ground story being red and cream sandstone, apparently Mansfield; the whole, although perhaps a little florid in treatment, being an excellent attempt to give character to a somewhat difficult class of building. Contrasted with this are some old red brick eighteenth-century houses such as that now occupied by the offices of the *Derbyshire Advertiser*, its plain, simple treatment gaining its whole effect from the circular bays carried up the whole height of the façade, although this effect is somewhat spoilt by the removal on the ground floor of the old white sashes, with their comparatively small panes.

The Free Library and Museum, in Wardwick, is one of the characteristic designs of Mr. R. Knill Freeman, of Bolton (see lithograph); and though an example of now somewhat unfashionable Gothic, is, as our illustration shows, a fine building, and worthily holds its own with the more fashionable Renaissance, whether of eighteenth century or nineteenth century date.

Another example of the modern Gothic period is the Municipal Technical College and School of Art and Science on Green Hill (see lithograph), the design of Messrs. Waller, of Gloucester, an example of Godwinesque Gothic of early French character, to which important additions are now in progress, the same style being maintained.

The Midland Deaf and Dumb Institute in Friar Gate (see lithograph), designed by Mr. E. Ryley, is a good piece of modern Renaissance in red brick and sandstone, and one of the most satisfactory pieces of modern design to be seen in the town.

The Derbyshire General Infirmary, situated in the London-road, commenced with a comparatively small building in 1810, and has gradually grown until it has received its present form (see lithograph), at the hands of Messrs. Young & Hall, who have skilfully managed to get considerable architectural effect towards the London-road, or principal frontage, by treating the ends of the ward pavilions with open loggie in stone connecting the sanitary turrets.

The Poor Law Offices erected in Becket-street in 1893, from the design of Mr. Ryley, are an example of somewhat ornate Italian Renaissance of official character, the detail good and refined, but the proportions not quite satisfactory, and in this respect contrasting unfavourably with the eighteenth century façades in the town. In one direction old tradition has been followed, in the erection of a stone front with brick sides and back, not a commendable practice, but a very general one with the eighteenth century builders of Derby.

The School Board offices are opposite the Poor Law offices, more modest, but still official in design, and, compared with its neighbour, verging on the commonplace, though this perhaps is rather the effect of the contrast.

The General Post Office at the corner of Victoria-street and St. James's-street, opened in 1869, is an admirable piece of dignified and restrained design in Classic Renaissance, somewhat formal and cold perhaps, but not more so than academic treatment demands, and refreshing as a draught of cold spring water after so much of the fussiness of modern work. The proportion is good, the detail refined and correct. The Mechanics' Institution close by (though the thoroughfare here takes the name of Wardwick), is another example of academic Classic Renaissance design, and though not so scholarly as the Post Office, is nevertheless a satisfactory instance of dignified workmanship.

The latest addition to the municipal architecture at Derby is seen in the new County Court and Inland Revenue Offices recently completed in St. Peter's Churchyard, an example of official architecture, faced with dull red terra-cotta bricks, with bands and dressings of buff terra-cotta, and green slate roof. An attempt has been made to infuse a Flemish feeling into the Late Gothic detail, and, though not equal to the level reached by some of the work recently turned out by the Architect's Department of the London County Council, the design very nearly attains a satisfactory level of excellence that is seldom seen in official architecture.

The Corporation Art Gallery in the Strand, at the rear of Mr. Knill Freeman's Free Library, was completed in 1882, from the designs of Mr. Story, of Derby, and, though well planned for its purpose and good in design, lacks the *verve* of its earlier neighbour, to which it is attached.

The famous Grammar School of Derby, founded in 1160 by Walter Durant, Bishop of Coventry, in connexion with the Monastery of St. Helen's, is now located at St. Helen's House, the residence of the Strutt family, on the site of the ancient Abbey of St. Helen's. The older building, in which John Flamsteed, the first Astronomer Royal, and other distinguished scholars were taught, still stands in St. Peter's Churchyard. St. Helen's House is a charming example of eighteenth-century design, with its tetrastyle Ionic treatment over the arcaded ground story. Here, however, we once more have an instance of the stone front, with brick side and back. To this old family mansion many additions have been made to meet the growing needs of the school, departing from the stateliness of the foundation, and picturesque rather than dignified. The School chapel, in red brick and white stone, with shingled flêche, is amongst these later additions, simple and quiet, and a good specimen of modern design based on fifteenth-century detail.

In the Uttoxeter New-road is the Diocesan Institution for the training of schoolmistresses, a large and important building of red brick and stone, erected in Jacobean style from the designs of Mr. H. J. Stevens. The building is four stories in height, with a lofty tower. Internally the plan is remarkably convenient in arrangement, and admirably adapted for its purpose of providing accommodation and training for forty-four students.

Amongst modern business premises may be mentioned the central offices of the Derby Gas Light and Coke Company, in Friar Gate (see lithograph), a large and important building in red brick and stone by Messrs. Naylor & Sale, in which a successful attempt has been made to grapple with the large scale

The Grammar School.

which the exigencies of modern plate-glass almost imperatively demand.

A very admirable piece of design is the Windsor Temperance Hotel in the London-road, in which good effect is gained by the use of a big red-tiled roof with dormers. The facing is in red brick, and relief is obtained by the use of a modelled frieze in buff terra-cotta and oriel windows on the second floor. Another spot where a not unsuccessful result in street architecture is obtained is at St. Peter's Churchyard and its junction with St. Peter's-street, where two examples, one depending on half-timbering and gables, the other on slightly florid red Renaissance work, are a welcome relief to the commonplace that so much predominates in all street architure.

In domestic architecture the oldest house in the town, if we except some scarcely legible remains in Nuns-street, is a picturesque and very charming half-timber house, hidden away behind the present modern houses in Tenant-street. The date of this house is probably about 1483. The house is all in half-timber work, with four gables and oriel windows of very flat projection irregularly disposed with embattled lead cresting to the small flats over the oriels. The building has been repaired and new lead quarried glazing inserted, but the work of restoration has been very conservatively and wisely done, and the house remains one of the most delightful antiques in Derby.

There are numerous examples of seventeenth century brick houses in various parts of the town, as in Tenant-street, Full-street, Bag-lane, Walker-lane, St. Peter's Churchyard, King-street (where the "Seven Stars" Inn, opposite the Grammar School, bears date 1680) and Friar Gate. Foremost of the work of the seventeenth century in interest is the mansion of the Gisbornes, in the Wardwick, opposite the Free Library, and bearing the date 1611, which we illustrate. A picturesque group of this period, though without much detail, is to be seen in the old "White Lion" Inn, situated where the Friar Gate merges into the Ashbourne-road.

As we have already premised, Derby is rich in domestic work of the eighteenth century, and some of the best examples are to be seen in the Friar Gate, a walk along which, with its trees on one side, is on a fine day a very pleasant experience, although its fair prospect is unfortunately guillotined by the Great Northern Railway bridge which spans the road.

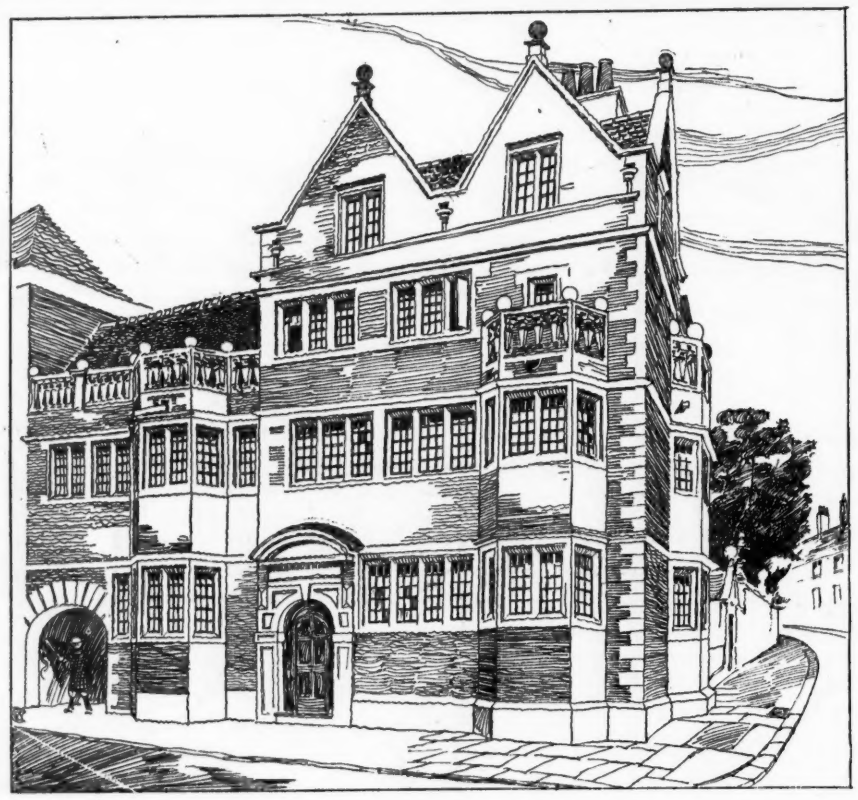
Amongst these eighteenth-century houses in Friar Gate may be particularly noticed St. Werbergh's Institute, in red brick and stone, with a very excellent wood cornice. There are also some other examples in Wardwick, notably the house at the corner of Becket-street, opposite to the seventeenth-century mansion of the Gisbornes. The house now occupied by the Beaconsfield Club, in Full-street, is another instance that should not be missed, with its quaintly treated doorway.

The old silk mill, already referred to, is chiefly interesting architecturally for its fine wrought iron gates (see sketch), which we have previously mentioned as the work of Bakewell. Yet another instance is the block of now very dilapidated buildings known as the Countess of Shrewsbury's Almshouses, situated in Full-street, which are now unoccupied, and still bear notices of their sale by auction on September 22, 1893. The continuation of their existence is therefore likely to be short. These were founded in 1599 by the celebrated "Bess of Hardwick," but the existing buildings were erected in 1777, and from the character of the detail appear to have been designed by Robert Adam, whose work at Kedlestone is only a few miles from Derby. The front of the Almshouses towards Full-street is carried out in stone, the Doric order being employed with a kind of screen enclosure to the quadrangle, reminding one of that to the Admiralty buildings in Whitehall.

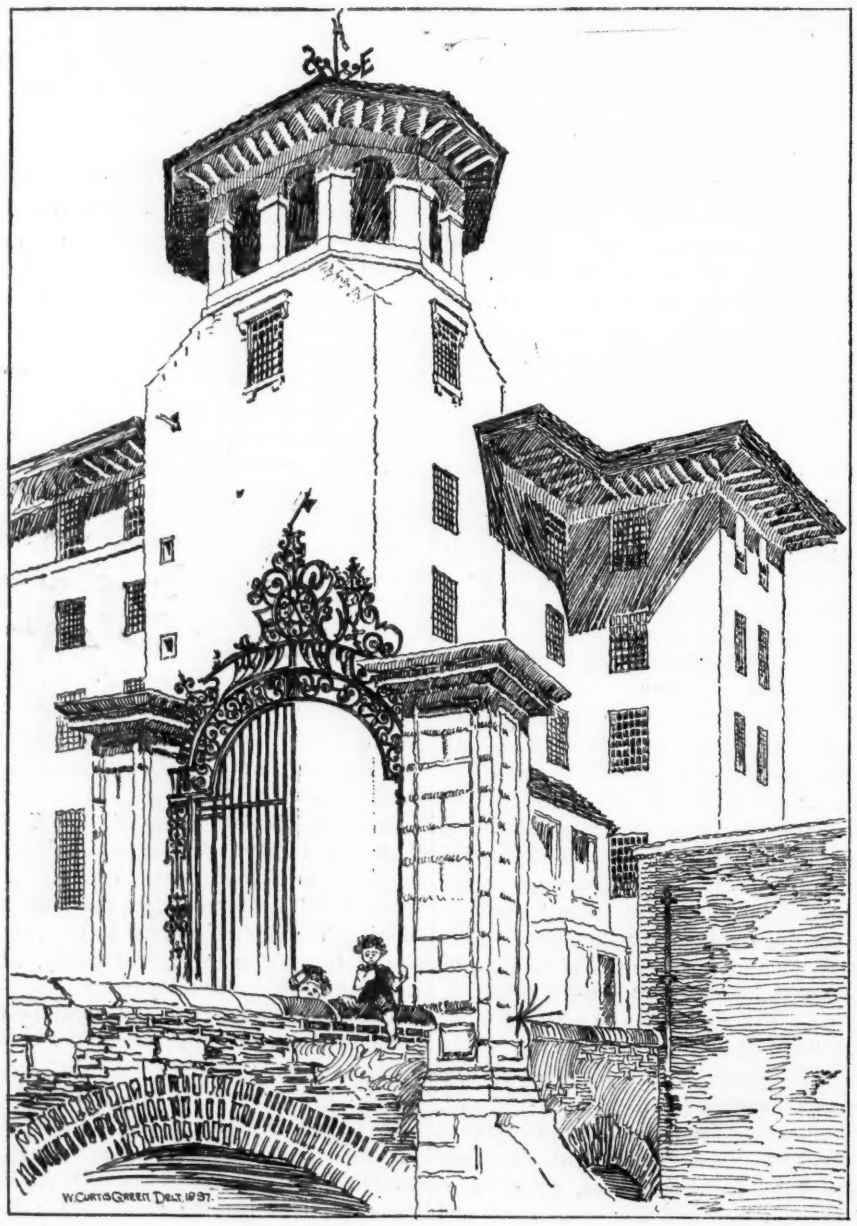
The house formerly occupied by the well-known painter, "Wright, of Derby," is in Queen-street, and is yet one more excellent example of eighteenth century work in red brick. Very near to this house, on the opposite side, are two old inns, "The Bull's Head" and "The Dolphin," with picturesque gables, but not very much detail, although the former has some good wrought iron work in its sign.

Amongst the examples of the Grecian phase of fashion, the important block of buildings in Victoria-street, comprising the Royal Hotel and Athenæum, must be mentioned. These were erected in 1839, on the site of two of the old inns of Derby, which were pulled down for the purpose.

The wealth of Derby in eighteenth century houses, which are still comfortable and commodious, has probably operated prejudicially on the development of modern domestic architecture in the town, and there are comparatively few examples which reach a higher level than that of the suburban villa. Amongst the exceptions may be mentioned a house on Burton-road, known as "The Gables," and recently built upon an elevated site commanding extensive views of Derby, for



House in Wardwick.



Gates of Old Silk Mill.

Mr. Smart, from the designs of Mr. R. W. Naylor, who, by the employment of red brick, red-tiled roofs, sandstone dressings, wooden barge boards, and half timber, has produced an excellent example of modern domestic architecture, picturesque in grouping and refined in detail.

In the Uttoxeter New-road are several blocks of comparatively small villas, to which, without extravagance, a pleasing character has been given, stamping the buildings as the work of educated architects, and so contrasting with the commonplace efforts of the speculating builder.

Thus it will be seen that, though Derby possesses nothing that can be called a great building, there is much of architectural interest both old and new, alike in ecclesiastical, municipal, and domestic work.*

NOTES.

Peterborough Cathedral.

THE work of rebuilding the north gable of the west front at Peterborough is now complete all except the pointing, and making good the roof up to the gable wall. The orders of the great arch which had failed and partially dropped have been rebuilt with scarcely a new bit of stone in them, and the gable above has been rebuilt in a solid and permanent manner with a fragment of new stone here and there, where a moulding was entirely decayed and where the stone would have decayed further if left. The remainder of the visible work on the gable consists entirely of the old stones replaced in the positions they occupied before, and so conscientiously and carefully has this been done that there is really nothing in the appearance of the work to indicate that it had been taken down and re-erected, and it only looks as if a few new stones had been inserted here and there. Its appearance affords the best possible answer to and comment on the ridiculous storm of indignation which was got up on the subject by persons who either did not know what they were talking about or who had purposes of their own to serve, and it is to be hoped (though we fear hardly to be expected) that the authors of this clamour that "the west front was about to be destroyed" will have the honesty to withdraw and express some regret for their remarks when they see the result. In order not to show too obtrusively the difference between the "plumb" of the rebuilt gable and the overhanging lines of the other two, the work has not been rebuilt quite perpendicular, but leans outward about 5 in., a degree of deviation which does not of course endanger its stability at all, though the fact that it has been thought necessary to do this illustrates the difficulty which must naturally arise from attempting to set right a portion of a front of which the remainder is leaning outwards; and our own opinion has been all along that the three gables ought to have been taken down and reset at the same time. However, there were reasons against this, of a pecuniary kind at all events; and what has been done has been done as carefully as possible in every sense, practical and æsthetic. The cross of the gable, which was all but falling in two, was just preserved in time, and has been cemented together and re-instated without a new bit on it. Some of the parts which had decayed most were in the

* The next of this series of articles, on the architecture of Nottingham, will appear in our issue of August 28.

mouldings of the lower portion of the wheel window, which, being inverted, formed water-bearing hollows, and it is proposed to fill up the hollows with cement, both in the renewed portions and in the still undecayed portions of the old work, so as to leave a surface from which the water will run, as the difference cannot possibly be seen except from the scaffolding. The pier has been tied back at each side, at the springing, by two 2½ in. steel ties bolted into flanges on the face of the masonry and anchored into the interior wall at the junction of the west wall with the nave, where the weight of the angle of the tower comes on it, so that this may be considered to be a pretty firm anchorage. We may congratulate the Dean and Chapter and their architect on the successful completion of an anxious and difficult piece of work, carried out in the face of an unexampled storm of archæological bigotry and intolerance.

The Gallery of British Art.

WE give in another column some particulars as to the new Gallery of British Art, which is to be formally opened by the Prince of Wales next Wednesday. Internally, the building is well planned and well lighted for a picture-gallery. The central hall with the glass dome or lantern over it has a good effect in the main, and the four large niches will form fine positions for groups of sculpture. It may be hoped that the fountain basin in the centre will eventually receive a decorative fountain design of some kind—not too large, so as not to fill up the central space too much. The best part of the design is the upper story with its coupled columns and arches. The details are rather commonplace, and the large projecting entablatures breaking over the columns have an even worse effect, owing to their position, than this objectionable feature in "classic" architecture usually has. The effect of the glass lantern, circular on plan, rising immediately above the octagon line of the balustrade which finishes the walling, is very awkward, and looks as if a lantern had been fitted on which was not intended for the building. On the other hand, the planning of the angle staircases and the access to them is ingenious and effective, and the rooms are certainly well adapted for the display of pictures and for convenience of circulation. Of the exterior we prefer to say as little as possible; it is done now, and cannot be undone, and it would seem ungracious to dwell on the defects of a building which is a gift to the nation, at the very moment when its formal opening is in preparation. But, looking at the really fine examples of English painting displayed in the interior, one cannot but regret that the building which contains them does not furnish a better example of English architecture.

The Workmen's Compensation Bill.

So far as the building trade is concerned we think the last word has been said on this Bill. In one of the recent discussions on the report, as our issue of last week was going to press, the question of the limitation of the Bill to work on buildings exceeding 30 ft. in height again was brought forward. This limitation, as we have already said, appears to be one only calculated to cause dissatisfaction among such workmen as are excluded by it from the benefit of the Act in regard to accidents. It was said in the recent discussion that to make the measure applicable to all buildings would press hardly on small country builders. But why the country builder is to be protected more than the town builder it is difficult to understand, more especially as much country work is already executed by builders from adjacent towns. However, the measure is thus drafted as applicable to the great majority of builders and their men, and excluding from it a few workmen engaged on very small jobs.

The Canal from Paris to Rouen.

THE French Chamber of Deputies will be occupied, in the ensuing session, with the project of the proposed ship canal from Paris to Rouen. According to the scheme drawn up by the eminent engineer, M. Bouquet de la Grye, the canal would follow the course of the Seine from Rouen to Paris, except at two points where it will cut the curves of the river, viz. between Oissel and Pont de l'Arche and between Sartrouville and Bezons. This will reduce the course by the Seine by 33 kilomètres, leaving the canal of a total length of 185 kilomètres, with a width varying from 35 to 45 mètres, and a depth of 6·20 mètres, allowing the passage to Paris of all classes of vessels which can now reach Rouen from the sea. The canal would terminate at Clichy with a basin of about 100 acres in superficial extent, with a quay-length of 6,340 mètres. Other less important towns would be served by the canal at various points. The cost of this operation, which would probably have a very important effect on the commerce of Paris, is estimated at about 150 million francs.

New Sewers and the Public Health Act.

THE way in which some persons go to law is really astonishing. An instance of this is to be found in the case of The Handsworth District Council *v.* Derrington, which was tried before Mr. Justice Kekewich last week. This District Council served the owner of the houses in a street in Handsworth, so long ago as February, 1894, with notice to sewer the street. As they did not comply with it the Council did the work, and the surveyor apportioned the cost of the work among the frontagers. This was objected to, and an arbitration ensued, which resulted in the surveyor's apportionment being lessened by the trivial sum of 2*l.* The amount awarded was 158*l.* odd. The defendants were not satisfied with their former obstruction, but now refused to pay the amount, and contested the legality of the charge on various technical legal grounds, the chief of which was that the street in question had been already sewered to the satisfaction of the Local Authority within the meaning of Section 150 of the Public Health Act, and that therefore they could not be compelled to do the work again. It was clear, however, that the street had never been sewered as a whole; there were drains serving one or more houses, which were connected with a main sewer in another road. The street was a growing one, and the judge came to what appears the obvious conclusion, that it could not be reasonably held that the street had ever been sewered within the meaning of the Act. It would certainly be very undesirable that a number of separate drains in a street could be held to constitute a sewering of the street. On the other hand, it is certainly desirable that what may be called the permanent sewering should be done at the time the houses are being built.

St. Mary, Battersea, Public Baths.

THE announcement of the terms of the competition for new Public Baths for the vestry of St. Mary, Battersea, is not satisfactory. The vestry announce, it is true, liberal premiums of 100*l.*, 50*l.*, and 25*l.*; but this is coupled with the emphatic declaration that "the design finally selected is to become the absolute property of the Vestry, and *if the Vestry engage the successful architect to carry out* his *design*" (the italics are ours) "the premium is to merge into and form part of the commission or remuneration to be paid him." The Vestry therefore formally retain the power to appropriate his plans and get some one else to carry them out; and at the best, the extra work which he does in preparing the competition drawings (which can never be used as working drawings) is to be so much loss of labour to him. The objectionable practice of charging competitors a guinea before they can have the "Instructions" by which alone they can discover whether it is worth their while to compete, the sum to be refunded only on the receipt of a design, again appears here. Not a word is said as to the employment of a professional assessor. Architects of any standing will hardly be likely to go into a competition on these terms—they will be very unwise if they do; and we recommend the Vestry to reconsider the matter and amend their advertisement next week.

Dangerous Electrical Works.

THE Departmental Committee appointed by the Home Secretary to report on certain dangerous trades, have issued an interim report dealing with electrical generating works. For their purpose they class as high-pressure stations all those where the pressure exceeds 700 volts, if direct, and 350 volts, if alternating. The recommendations are numerous, and some of them are distinctly good. To cover the floors of all places near where it would be possible to make contact with metal at high pressure with insulating mats is a cheap and effective expedient. The recommendations about protecting switchboards and having a special disconnecting switch on street arc lamps are necessary. The importance of indiarubber gloves is dwelt on, and the necessity of making the manager responsible for seeing that they are worn by the workpeople and are kept in a proper state of repair. Our recent suggestion that the covers of transformer sub-stations should be made to automatically cut off the high pressure when lifted is not adopted, but the useless expedient of an outside switch is recommended. Transformer boxes must be efficiently "earthed," but no hint is given as to how this is to be done. We should be sorry to see workmen's lives left to the mercy of an "earth" which might easily cease to be an "earth" if the wire corroded away, or if the ground got dry, or for any other reason. We think that all persons engaged in electricity works ought continually to be reminded of the dangers to be avoided. Last week a workman was killed at Bournemouth by his head touching a synchronising switch while he was drilling a hole into an iron column.

It should be part of the duty of the electricians connected with the works to instruct the workpeople as to what are the dangerous parts of the machinery, cables, and connexions.

Houses of Parliament for Mexico.

ACCORDING to official notification from the Government of Mexico, the new Republic is to have a large building to fulfil the purposes of Houses of Parliament, at a cost not exceeding 150,000*l.*, and an international competition has been opened for the design. The conditions of this competition are of considerable interest. There are to be seven assessors, three of whom will be chosen respectively by the Chamber of Deputies, the Senate, and the Ministry of Public Works, whilst the four others are to be chosen by the candidates who are sending in designs. Another feature of the competition is a statement that the first premium will have a value of 1,500*l.*, of which, however, only half will be paid on the decision of the assessors, whilst the other half will not be granted until the completion of such supplementary drawings as the assessors may consider necessary. Nothing is said as to the commission being given to the recipient of the first premium. There will be several other valuable premiums, however, and the conditions as regards the number of drawings required, and the scale, which is one to two hundred (or about one-sixteenth of an inch to the foot), are moderate. The sending-in day, however, which is November 30 next, is very early, if one considers the time that has to be deducted for sending a package to Mexico. We may add that the Council Chamber for the Deputies is to have 336 seats, and that for the Senate eighty seats.

A German Criticism on the Jubilee Decorations.

THE London decorations for the Jubilee are the subject of an article in our official contemporary at Berlin. The author considers the work to have been of a low standard, and attributes this to the absence of any organised plan for the treatment of the thoroughfares—a criticism in which there is, no doubt, some truth. London, he observes, cannot expect much in the way of decoration until the conception of any scheme is taken out of the hands of so-called "decorators," and the commission placed in the hands of artists of high standing. This also is, perhaps, true; but, for all that, we do not wish to see our street decorations under State control (which is evidently what is intended), and would rather see individual efforts, even of a rather low artistic standard, than the compulsory treatment so common in Russia. In England we should hardly appreciate the system of decorations being ordered by the Imperial authorities for their own glorification, and it should also be remembered that our Royal Family does not aspire to the same authority in art matters as some of the members of foreign reigning houses, nor do they publicly criticise what their people do with the view of honouring them: it would be considered "bad form."

Liskeard Church Tower.

WE print in another column a letter from Mr. J. D. Crace, protesting against the proposed destruction of the old church tower of Liskeard. From a letter by Mr. Fellowes Prynne, printed in *The Church in the West* for July 10, it appears that in 1890 a lady (Miss Pedler) left 1,000*l.* towards the rebuilding of the tower, on condition that a new tower at a cost of 3,000*l.* was erected within ten years; otherwise the 1,000*l.* was to go to the Truro Cathedral fund. Mr. Fellowes Prynne, who had been professionally engaged to report on the condition of the tower, stated that though the tower was the oldest architectural monument in Liskeard, it is in a perfectly stable condition; but apparently the Liskeard people are determined to have it down in order to secure Miss Pedler's 1,000*l.* and prevent it flying off to enrich Truro: truly a pretty reason for destroying an ancient monument! If they want to secure the money, why cannot they build a new tower in another position, and leave the old one alone?

The Académie des Beaux-Arts.

THE result of the election of the new member of the French Académie des Beaux-Arts, in the place of the late Duc d'Aumale, is rather a surprise. The choice has fallen on the Prince d'Arenberg. There were six "tours de scrutin," and on the final occasion M. Chas. Yriarte, who had been classed in the first rank of the candidates, received only three votes. M. Georges Berger obtained fifteen, and M. Jules Comte one. We do not know the claims of the new Academician to be elected into an Academy of Fine Arts, but we do know those of M. Chas. Yriarte very well; all the educated world knows them; and the election seems to argue that the Académie des Beaux-Arts is more attracted by aristocratic titles than by solid accomplishments. In a few days the Académie will proceed to the election of a successor to the late painter, Français. The candidates are (in alphabetical order) MM. Busson, Dagnan-Bouveret, François Flameng, Harpignies, Albert Maignan, Aimé Morot, Roybet, and Vollon.

Liverpool Architectural Society.

THE Annual Report of this Society, a very brief pamphlet, records, we regret to see, that the number of members (all classes) has decreased from 137 last year to 121 this year. On the other hand, the attendances at the meetings are stated to have been much better than formerly, and some very good papers have been read, though there is a complaint that the discussions were not well supported. The Society seems to be under the same difficulty as the Institute of Architects in regard to Associates who ought to become Fellows and do not, as there is a sentence in the Report impressing on Associate members the desirability of their becoming Fellows as soon as they are eligible, and also intimating that the Rule which states that "Student members shall be pupils not exceeding twenty-three years of age" will be strictly enforced in future. The Liverpool Society reaches its Jubilee year next year, and it is hoped to celebrate this in a fitting manner. We may recall to the present generation of members the fact that in its early days the Society published an excellent annual volume of Transactions, which in fact was superior to that of any other architectural Society at that time, not excluding the Institute.* It would be a very good form of Jubilee celebration if the Society could see its way to renew its annual publications in a form worthy of their ancient reputation.

* The publications of the Liverpool Society were held up as an example for the Institute to emulate, in an article in (we think) the *Quarterly Review* some forty years ago.

Society of Fine Arts.

THREE new collections were to be seen at the private view at the Fine Art Society's Gallery on Saturday last. A number of originals of Mr. Sambourne's drawings for *Punch* show his bold and decisive style of drawing, but it can hardly be said that either in an artistic or humorous sense the majority of these impress one as very remarkable; there are, however, two exceptions, "The New Poet-Laureate" (61), a caustic and well-merited piece of satire, and "The Princes' Message" (76), showing the American eagle reading the pacific telegram from England after President Cleveland's demonstration; this is a really powerful thing, both as a drawing and as satire. Mr. Hugh Thompson's drawings belong to a higher level; the principal set are the illustrations to Jane Austen's "Emma," many of which are quite admirable; one of the very best is "Mrs. Elton was first seen at Church" (111), which does not show us Mrs. Elton, but the members of the congregation looking at her; an admirable sketch of rural personalities of a bygone day. Mr. Thompson, however, seems to be more successful in getting the general character of Jane Austen's people than in realising special characters; his Mr. Elton in No. 96 is good, certainly, but Mr. Knightley and Mr. Darcy ("Pride and Prejudice") are by no means done justice to; Mr. Knightley was a man of thirty-eight, of considerable force and dignity of character, not the mere good-looking youth pourtrayed in No. 117. The sketch of Mr. Weston running out with the umbrellas (94) is a very good representation of action and movement in the figure, reminding one of Leech's excellence in this respect. The fourteen silver-points by Mr. Charles Sainton include some charming artistic fancies, and also some ugly and rather vulgar ballet-girl subjects, which are not worth so refined a medium of artistic expression as silver-point.

ELECTRICITY SUPPLY.

AN application of the County of London and Brush Provincial Electric Lighting Company for an extension of their area of supply over a portion of the Holborn and Strand districts was considered before a committee of the House of Lords last week. The area they wanted to supply is already served by the Metropolitan Company, and as they opposed the granting of the Provisional Order, many arguments for and against the scheme were brought forward by the interested parties. Lord Kelvin, on behalf of the Metropolitan Company, laid down as a general principle that when a company which had been a pioneer in a new industry did its work well there ought to be no interference with it. Evidence was, however, brought to show that the work of the company had not been always well done. On more than one occasion the lights in the district had gone out for several hours.

The company's engineer tried to explain this away by saying that on one of the occasions referred to the Royal Music Hall had been trying experiments, with the result that they had short circuited the mains, and so the lights at the Holborn Town Hall went out. This itself seems to prove that there must be something wrong with the system of supply, for the lighting of a whole district is apparently at the mercy of any large consumer who may be experimenting with new lamps.

Professor Kennedy stated that the wiring of the Holborn Town Hall was very defective;

that 4 per cent. of the power supplied was wasted for causes outside the control of the Supply Company. Lord Heneage, the Chairman, however, stated that as the complaint had been made about the lights going out, the state of the wiring had nothing to do with it.

It seems to us that Lord Kelvin's appeal for a monopoly on behalf of a pioneer company has no equitable basis in this case. If the company were truly a "pioneer" company, and if its shares were at a discount, this appeal for pity might be listened to; but as the shares of this company and of other similar "pioneer" electric lighting companies are at a premium of from 50 to 300 per cent., it seems that the pioneers have already been rewarded for their public services.

The main argument brought forward by the County of London Electric Lighting Company was that they were going to supply direct current whilst the Metropolitan Company's supply is alternating. Their counsel quoting from a report of Major Marindin, one of the Board of Trade engineers, made in 1889, said that "in the abstract, competition was desirable as tending to keep down the price." The general policy of the Board of Trade has been to restrict the competing companies to two, one direct and the other alternating, as has been done in Chelsea, Hanover-square, the Strand, and Westminster. This has worked well in practice, in keeping down the price, and it is obvious that competition with gas alone would be not nearly so effective.

As the County of London Company had up to a month or two ago been supplying nothing but alternating current, counsel argued that the Metropolitan Company could supply direct as well as alternating by means of motor-transformers, *i.e.* by means of continuous current dynamos directly coupled to alternating current motors.

After throwing out this suggestion it was carefully kept in the background as it had obviously not been seriously considered by the Company's engineers.

It was stated that the Chelsea company bought alternating current at wholesale rates from the London Electric Supply Corporation, and then, by means of motor transformers, delivered it to their consumers as continuous current. Counsel endeavoured from this to prove that alternating current motors nowadays are highly efficient, but Mr. Swinburne clearly exposed the fallacy of this reasoning.

The size of motor, for which there is a demand in the area of supply considered, is from one to fifteen horse-power, mainly for printing establishments and small workshops. It is just this size of alternating current motor that is unsatisfactory, according to Mr. Swinburne. Very small alternating current motors, for driving fans, &c., compare favourably with very small direct current motors, and very large alternating current motors, such as those used by the Chelsea company, may be highly efficient, especially as they are kept working continuously at their most efficient load, the external load being kept constant by means of secondary batteries. It is the medium-sized alternating current motors that are very troublesome and difficult to work. For the same efficiency also they are much more expensive than direct current motors, and the difference between the starting and the running torque is less.

The managing director of the Otis Elevator Company said that his company either used hydraulic or electric power to work their lifts. The cost of working with electric power was much less than with hydraulic power, but as the lifts are worked by motors of only about five horse-power, they could only make use of direct currents.

Apart also from the motor question, alternating currents are unsuitable for general electrolytic work and for charging accumulators. It is thus greatly in the interests of consumers to have a choice of either alternating or direct currents; besides that, competition always has a tendency to lower prices. Seeing that the House of Lords had, in 1895, decided a somewhat similar case in the Charing Cross district in favour of allowing two companies to serve one district, it is not to be wondered at that, after a very few minutes' consideration, they allowed the Provisional Order to proceed.

WESLEYAN CHAPEL FOR CASTLETON.—It has been decided to invite tenders for the erection of a new Wesleyan Chapel and school at Castleton. Plans prepared by Mr. H. W. Lockwood, of Sheffield, have been accepted. The estimated cost, exclusive of the land, is about 1,800*l.*

THE NATIONAL GALLERY OF BRITISH ART.

THIS building, which is a gift to the nation by Mr. Henry Tate, for the special illustration of British Art—a Luxembourg Gallery for London—is to be opened by the Prince of Wales on the 21st inst.

The foundations are carried down about 30 ft. below ground level, and cost alone about 12,000*l.* The architectural style of the building is "Free Classic." The elevations are faced with Portland stone. The front elevation has a shallow portico of six Corinthian columns, with pediment over. A flight of steps leads up to the entrances; and at the extreme ends are two pavilions with an order of Corinthian pilasters raised on pedestals and terminating in pediments; between the pilasters are deep niches with an Ionic order of columns and pilasters supporting entablatures with semicircular arches over. Between the end pavilions and the central portion is a plain ashlar wall to give relief to the surrounding features; in the centre of this portion is another niche flanked with Ionic pilasters with a small Doric order between them with semicircular arch over to form the niche. The Ionic order finishes with a pediment. A rusticated basement, 10 ft. high, runs entirely round the building.

The entrance doors lead into a rectangular vestibule 50 ft. long and 26 ft. wide, with an Ionic order of columns round the sides in Portland stone; the ceiling is a plaster barrel vault, with panelled stone ribs springing from the Ionic entablature over the coupled columns.

The vestibule gives access to a corridor 12 ft. wide which surrounds the central octagonal sculpture hall, which is 38 ft. wide, and has four entrances and four semicircular niches or recesses for seats or sculpture. From the corridor or sculpture hall the various picture galleries are entered, and are so arranged that there is no necessity to retrace one's steps.

There are seven picture galleries, three of them being 59 ft. long by 32 ft. wide; the long gallery is 93 ft. long by 32 ft. wide, and the square gallery 32 ft. by 32 ft.

The interiors of the flanking pavilions are treated as octagons, and are also to form picture galleries; they are each lighted from the top by a glass dome, with panelled and ornamental plaster ribs and cornices.

The other galleries are all top lighted, the ceiling being formed with elliptical panelled plaster ribs and ornamental spandrels, Messrs. W. E. Rendle & Co.'s patent glazing being used.

The corridor on the ground floor is divided up by piers into squares and ellipses, and has small flat domes over each. At the ends of the corridors are circular staircases which lead up to the first-floor sculpture gallery, which is 15 ft. wide, and to the picture gallery over the vestibule, which is about the same size. The stairs are entirely in white marble, polished. The upper sculpture gallery is lit by circular skylights. The central sculpture hall is open at the first floor, and has an area with coupled Ionic columns with balustrades dividing it from the upper sculpture gallery, which runs all round. The basement of the building is divided up into rooms, similar to the galleries, to be used for picture restoring and cleaning rooms, students' easels, store-rooms, offices, and boiler house. The basement is entered from the ground floor by circular staircases, which also lead to the lavatories and cloak-rooms in the basement.

The floors of the central portion are in Sicilian marble and marble mosaic, and the galleries have polished oak floors.

The warming and fire appliances are carried out by Messrs. Z. D. Berry & Sons, and the drainage, sanitary fittings, &c., by Mr. G. Jennings; the whole of the ironwork was done by Messrs. Handyside & Co.; Mr. Stone has supplied all the casements, iron doors, and window fittings, and Mr. W. Ramsey is carrying out the glazing; Messrs. Dennett & Ingles' fireproof construction is used for floors; the carving has been carried out under the direction of Mr. Christopher Smith, and Messrs. Drake & Gorham and Mr. Russell are responsible for the electrical lighting, and (as before mentioned) Messrs. Rendle & Co. have done the roof glazing; Messrs. Starkie Gardner & Co. made the presentation key and ornamental ironwork, and the pavings have been done by Evans, Mainzers, Simpsons, and De Grelle & Co. The walls of the galleries are lined with Tynecastle tapestry. The builders are Messrs. Higgs & Hill. Mr. Sidney R. J. Smith is the architect.

Provision has been made for a considerable future extension of the building, by which the now existing hanging space would be nearly doubled. An illustration of the building appeared in our issue for January 2, this year.

COMPETITIONS.

UNION HOSPITAL, PATRICROFT, NEAR MANCHESTER. — On the 7th inst. the Barton Board of Guardians recommended the following as the order of merit of the plans which had been selected for the erection of the new Union Hospital at Patricroft:—1, Sanitas; 2, Red Cross; 3, Aut Optimam aut Nihil. It was stated that Messrs. Thomas Worthington & Sons, Lombard Chambers, 46, Brown-street, Manchester, had secured the first premium of 50*l.* for the plans signed "Sanitas." Messrs. Booth & Chadwick, Patricroft and Manchester take the second premium of 30*l.* with the plans signed "Red Cross"; and the third premium of 20*l.* was awarded to Messrs. Maxwell & Tuke, Manchester, whose plans bear the signature of "Aut Optimam aut Nihil." Mr. Berry, in reply to members, stated that after the Board had paid the premiums they were at liberty to accept what plans they choose for the erection of the new building in the grounds enclosing the new union workhouse.

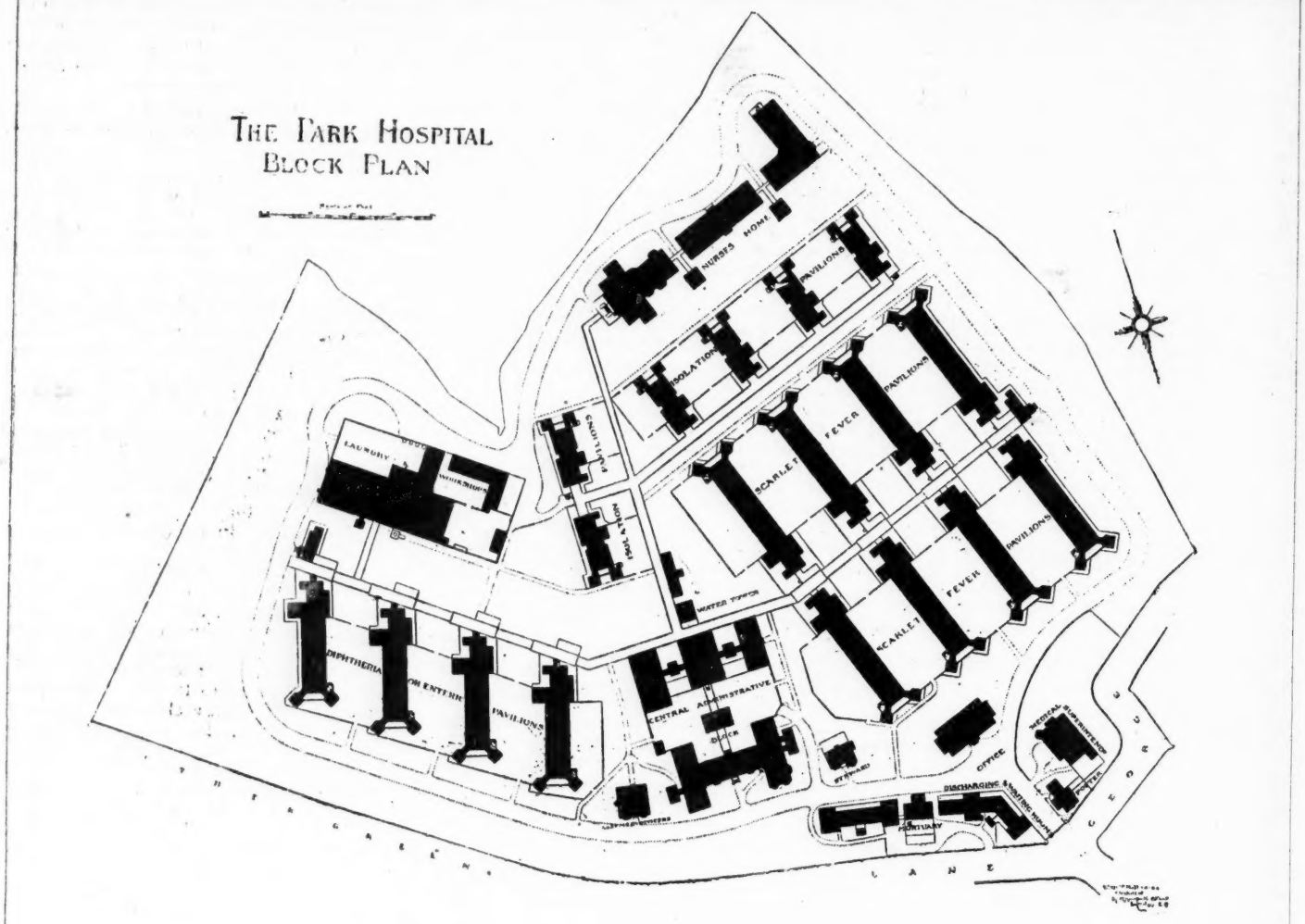
BOARD ROOM, &C., ORMSKIRK.—Some time ago the Ormskirk Board of Guardians offered premiums of 20*l.*, 15*l.*, and 10*l.* for the three best designs for a new board room with committee-rooms, &c. There were twenty-four competitors, and these were reduced by the General Purposes Committee to twelve, whose plans were sent to Mr. J. Dod, architect, of Liverpool, for a final selection. His report and awards came before the Building Committee, and their recommendation that the awards be accepted was adopted by the board at its fortnightly meeting on the 9th inst. The awards were as follows:—1, "Economy," Messrs. Willink & Thicknesse, architects, Castle-street, Liverpool; 2, "A.B.C.," Mr. H. E. Peach, architect, of Southport; 3, "Cawdor," Mr. Robert J. M'Beath, architect, of Sale, near Manchester. According to the conditions the Guardians do not bind themselves to carry out any design, and undertake to return all designs except the winner of the first premium, which becomes the property of the Board. The Building Committee were anthorised to consider the designs with a view of recommending one to be carried out.—*Liverpool Courier.*

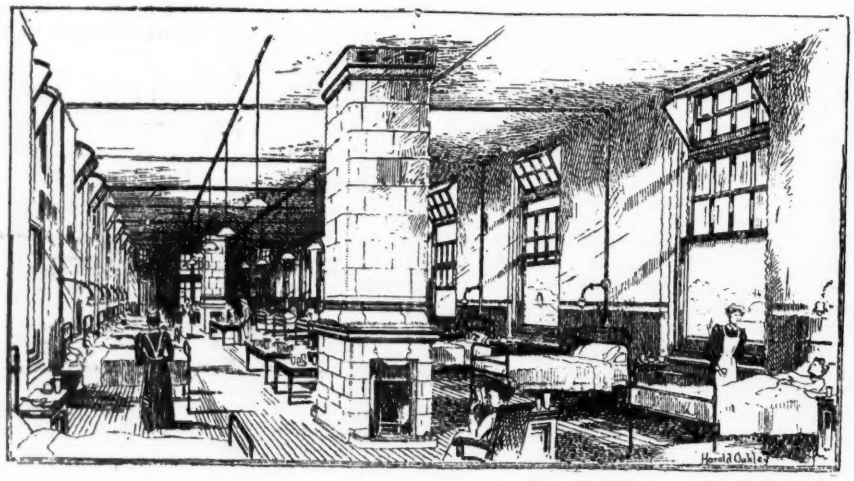
THE PARK HOSPITAL, HITHER GREEN, LEWISHAM.

ON Monday the Prince of Wales, accompanied by the Princess and Princess Victoria, opened the new fever hospital at Hither Green, Lewisham, which will be the ninth hospital under the management of the Metropolitan Asylums Board.

The building is situated on an elevated site (the highest in the district) near Hither Green Station, on the South-Eastern Railway, about three-quarters of a mile from Lewisham and six miles from London Bridge. The average level is about 95 ft. above high-water mark, there being a difference of over 30 ft. in altitude from east to west, and of 23 ft. from north to south. The "infected" buildings are generally about 100 ft. from the boundaries of the site. The site consists of 20 acres of ground.

The hospital is intended for cases of scarlet fever, enteric fever, and diphtheria, and the accommodation is as follows:—Scarlet fever, 48 wards for 368 patients; diphtheria and enteric fever, 24 wards for 120 patients; isolation wards, 36 wards for 60 patients. The disposition of these is shown on the accompanying block plan—the scarlet fever wards lying to the right, the diphtheria and enteric fever wards to the left, and the isolation blocks to the rear of the former. The pavilions are disposed on a roughly radial plan, and are connected by covered ways with the kitchen, steward's stores, water tower, dispensary, and telephone exchange, all of which are in the centre, together with the male and female servants' residences, the latter facing the road. As the receiving rooms for the different diseases are at the outer or zone ends of the respective covered ways, the danger of patients suffering from different diseases coming into contact is very remote, all direct source of contagion being thus kept away from the central block, to which tradesmen and others have access. The nurses are located on the summit of the site, having to the south of their homes grounds where they may get rest and recreation away from the sight and sound of their work. To the south-east are placed the laundry, the boiler and engine houses, workshops, disinfecting house, well and water-softening apparatus. The medical superintendent's house is near the entrance and the offices. The discharging rooms, mortuary, post-mortem rooms, &c., are close by. The assistant medical





A Ward in the Park Hospital.

officers house is near the diphtheria pavilions, and the steward's house commands the entrance to the stores and kitchen yard.

The number of staff for whom accommodation has been provided is 316.

All pavilions are axially nearly north and south, and are two-storied, with fire-proof and sound-proof floors. There is no internal communication between the two stories—the upper floor being reached by an external staircase opening from the covered ways. Lifts are provided at each staircase for coals, food trolleys, &c. A scarlet-fever pavilion contains on each floor three wards—one for twenty beds, one for two beds, and one for one bed—a ward scullery, and other offices, the scullery being fitted with hot-plate kitchener, sink, &c. There are also provided a bath-room, two water-closets for patients and one for staff, sink-room, two bed-pan slop-sinks, lavatories, movable baths, &c. In addition to hot-water radiators, there are central open fireplaces and stacks of flues. In these central stacks every smoke-flue can be swept from the external basement. The smoke-flues are surrounded by aspirating-flues, which, being thus heated, induce an up-current, and so draw off the heated vitiated air from the centre of the wards. In each stack (which is externally made of glazed faience) are eight of these air-flues and four smoke-flues, and the whole are contained in an area 3 ft. 6 in. square. All these air-flues can be swept, and all have outlets on two sides. Throughout the pavilions there is not a single buried pipe or inaccessible space of any kind. The linings of the sash-windows are made to open for sweeping. Weights and sash-lines can be removed and renewed without taking out the sashes. In some of the buildings is a new type of sash-window, designed by the architect. There are no hollow linings, the frame is solid but the sashes slide up and down. In addition, they are made to open inwards to throw the air upwards. They can be regulated to any angle, and can be opened to admit air through the full area of the frame—*i.e.*, double the area of an ordinary sash-window. For "scouring" a ward this is of value. They can also be cleaned, painted, and reglazed from the inside. The mode of securing these sashes is by a fastener on the bottom rail, avoiding the necessity in high windows of steps. It also enables the sashes to be made rigid, so that they cannot rattle in a wind. In one of the wards ordinary hollow sash-frames have National Accident Prevention Window Company's sashes, which are hung on centre pivots, and are similarly accessible for cleaning, painting, and reglazing from the inside. The water-closets used are of the bracket type, fixed clear above the floor, which can thus be kept clean. The main waste from the baths is an open trench in the floor. Attached to the pavilions at both ends are airing balconies to which the beds can be wheeled for "sun" baths, and every pavilion has its own airing-court.

The laundry—divided into two parts for patients and staff respectively—is a long rectangle. Soiled linen enters at one end and passes through the several cleansing processes to the distributing-room at the other. The disinfector is at the entrance to the laundry-yard, and is fitted with a Lyon's apparatus. The boiler-house is partly under the laundry. There are four large boilers with "Economiser" connected to the furnace shaft. The engine-room contains laundry-engine and the electrical plant of three engines and dynamos for lighting the hospital.

The hospital is to be supplied by water taken from the chalk, and the wells are now being sunk. The water will be pumped into a softening apparatus alongside, and thence to the water tower and the various other storage tanks. The water-tower forms a central feature, and contains a four-dial clock, visible from all parts of the premises.

The kitchen-block is a one-storied building, the walls internally faced with glass. Close by are the larder (also faced internally with glass), the steward's stores, and all the servants' homes, &c.; this group enclosing a large yard.

The female servants' block contains a separate cubicle for each maid, large mess and sitting rooms, and offices. The matron's quarters consist of a separate "flat" in the same block. The male servants are similarly housed on the opposite side of the quadrangle. The nurses' home is divided into three houses, connected with glass and iron corridors on every floor as an additional means of egress in case of fire. Separate dining and sitting rooms are provided for charge and assistant nurses, and a common writing and reading room. Each nurse has a separate bedroom. In these residences, as well as in the fever pavilions, all water-closets, lavatories, &c., are in detached towers, approached by enclosed passages, so that every building is practically separated from its sanitary annexe. All annexes are warmed, and hot water is laid on to baths and lavatories.

There are telephones in the various buildings, and from any one an official can communicate with every other building throughout the hospital. Fire hydrants are fitted throughout the buildings and in the yards, and fire-alarms in every block communicate with six alarm bells in various parts of the hospital, while a special arrangement is made to call all the staff together in emergencies. It has been already noted that covered ways connect all parts. These are of brick and concrete. The floors and steps are of red granolithic concrete. Under all these covered ways are well-lighted subways in which are fixed the water and steam mains and heaters, electric light, telephone and fire alarm cables, &c., all accessible at any point for repair.

The heating of the hospital is carried out on the

low pressure hot water system, the heat being generated separately in each pavilion by means of one of Messrs. Z. D. Berry & Son's improved multitubular heaters, fixed in the subway at the point where each pavilion branches from the main corridor. A flow and return main is then taken off the heaters, and run right round the walls of the pavilions under the ground floor, and vertical pipes are taken from this main to supply the radiators on the ground and first floors, a separate pair of verticals to each radiator on each floor. Steam is conveyed from the boilers to each of the heaters, and the condense water from each heater is collected into a condense main and taken back to the hot well in the boiler-house, and thence pumped back to the boilers. The wards are heated by means of radiators fixed in cast-iron cases. Behind each radiator are two large fresh air inlets fitted with cast-iron hit and miss gratings, and coupled together and connected with a lever taken to the top of the radiator case, so that the quantity of fresh air may be regulated; the fresh air is then warmed and discharged into the wards through a large hit and miss grating constructed in the top of the radiator case. The radiator cases have been specially designed to meet the requirements of a fever hospital. Each case is fitted in the front with a large pair of doors which are opened with a key so that the interior of the case and the radiators can be dusted out and thoroughly cleaned by those in charge of the wards. In the bottom of each door is provided a hit and miss grating, which in very cold weather enables the air in the wards to be circulated through the radiator. The hot water which supplies the baths, lavatories, sinks, &c., is generated in a multitubular heater similar to those used for the hot water heating (one for each block), and a flow and return main is run by the side of the main for heating, and branch loops are taken off to supply the various fittings. All branch loops are in circulation. The whole of the horizontal pipes and valves are so arranged that they can be attended to and examined without the engineer having to enter the wards.

There are some six miles of pipes within the area of the hospital. The various diseases are kept separate in the drainage scheme, and all "non-infected" drains are kept distinct from the others. The manholes or inspection chambers are of solid glazed fire-clay (Border's patent), the bottoms and all the branches being cast in one piece. The pipes are of the Archer jointed type, laid on and covered with concrete. The whole pipe system is divided into separate lengths for efficient ventilation, and all drains are fitted with flushing tanks.

The architect of the hospital is Mr. Edwin T. Hall, and his design was selected in competition. Mr. Turner has acted as chief clerk of works, and Mr. Mansell as assistant clerk of works. In the special electrical work Mr. Wray was clerk of works. The electric scheme has been designed and supervised by Messrs. Burstall & Monkhouse, civil engineers. Mr. Dolby, C.E., has advised on the mechanical engineering throughout, and has supervised the erection of the boilers and machinery. The contractors were Messrs. Leslie & Co., Limited, of Kensington. The contract sum is 210,000*l.*, a little less than the architect's estimate. The work has been carried out under the personal supervision of Mr. Shingleton, Managing Director of Messrs. Leslie & Co., assisted by his manager, Mr. Kitchener, and the general foreman of the works, Mr. Easter. Messrs. John Hall & Co., of Stourbridge, supplied all the ivory-coloured glazed bricks used in the building. Messrs. Colledge & Bridgen made and supplied the locks, lock furniture, and brassfoundry work.

Additional particulars of the building, and illustrations, will be found in our issue for September 8, 1894.

REFUSE DESTRUCTORS.

THIS was the title of a short paper read recently by Mr. H. P. Boulnois at the Engineering Conference of the Institution of Civil Engineers. The paper was read before the "Waterworks, Sewerage, and Gasworks" Section, and was as follows:—

"It is clearly the legal duty of local authorities to remove the contents of ashpits or dustbins where the contents are not trade refuse, and this is effected with more or less expedition and care by nearly all the local authorities throughout the country. The quantity of refuse that thus has to be removed and dealt with in some manner varies in every community and at various seasons of the year, but it may be roughly estimated at about ½-ton of refuse per head of the population per annum. Without touching upon the various methods at present adopted for the purpose of disposing of the refuse thus collected, the author will at once state what are the necessary requirements of a good refuse destructor, bearing in mind that the refuse is never destroyed, but is converted by heat into steam, vapour, and various gases, leaving behind a varying quantity of fine ash and clinker.

Ease of access is very necessary, as cartage beyond certain limits would convert any saving by this process into a loss.

A suitable locality is important, for if a destructor is properly constructed and managed, it need be no nuisance to the neighbourhood, except from the frequent passing of the carts.

Steep gradients either to the site or to the platform of the destructor are obviously to be deprecated.

The tipping-platform is an important feature; any crowding of carts or difficulties add greatly to the cost and to the chances of nuisance.

Strength of construction in all its details are essential in a destructor that is roughly handled and subjected to fierce and varying temperatures, and where any breakdown seriously dislocates the disposal of the refuse, which must be dealt with day by day and hour by hour.

Ease of charging the furnaces is most important on economical and sanitary grounds. The organic matter contained in house refuse should not be heated in any way until it is absolutely in the furnace, and the less it is handled with or without tools, the more sanitary and economical is the process. Any picking or sorting of the filthy mass is, in the author's opinion, objectionable, and it should be put direct from the cart into the fire if possible.

The question of the heat generated in a destructor furnace is the crux of all such processes, and many are the opinions expressed on this point.

If too fierce a temperature, injury may be done to the firebrick lining, or even to the destructor itself. If too low a temperature, complete destruction does not take place. The heat is nearly always a question of how much air is admitted by steam blast or fan, the area of fire-grate, and the form of flue and dimensions and height of chimney. In some cases temperatures of only about 800 to 900 deg. F. are raised in the cells, but the fumes are made to pass over cremator fires, where coke-breeze fires double the temperature of these fumes. In other cases the temperature in the cells is raised by air or steam blasts to 1,500 or 2,000 deg. Time will not permit the author to discuss these questions, which will, no doubt, be taken up by his hearers.

Speedy and complete combustion is, however, essential, as the more refuse which can be passed through each cell the better; but it is useless to pass it through unless there is complete combustion, as the fine ash and clinker left is nearly proportionate to the heat in the cell, and varies from 24 to 33 per cent. of the refuse dealt with. It follows that the less clinker the more economical the process, and the less organic matter left in the clinker the more sanitary the process. The ease and speed with which the clinker and ash can be removed from the furnace depends in large measure upon the form of cell and fire-bars. The nature of the material burnt produces a clinker which adheres tenaciously to the sides of the furnace and to the bars, and several modifications of moving, rocking, or joggling bars have been introduced, as well as hollow sides to the furnaces, to minimise this evil.

It is almost unnecessary to say that the avoidance of all nuisance is essential with refuse destructors, and that it is difficult of accomplishment, owing greatly to sentimental objections. Possible nuisances may, however, arise—(*a*) From the concentration of the carts conveying the material to the destructor; (*b*) from the fumes or fine ash from the chimney; (*c*) from dust blowing about; (*d*) from vapours of distillation, if the refuse is only partially burnt or allowed to 'stew' on the charging platform. The first of these can only be avoided by having properly constructed and covered carts or waggons for the conveyance of the refuse. The second can be avoided by height and construction of chimney, and the placing of screens at its base, or by ensuring such heats that nothing but harmless gases shall pass up the chimney from the flues. The third possible nuisance is more difficult to avoid, especially in high winds; but if the destructor is surrounded by high walls, and the refuse is not allowed to lie about, but is tipped directly into the furnaces, or other suitable arrangements are made, this nuisance is only confined to the premises themselves. The fine ash drawn from the furnances can be received directly into movable covered receptacles, and thus at once confined until it is tipped out on to the heap, or wherever is its ultimate destination. The last nuisance can easily be avoided by not allowing the refuse to remain on the charging platform, but by tipping it into iron tanks, from which it is discharged directly on to the fires in the furnaces.

Economy in working is essential, as otherwise the process of burning the refuse would be abandoned for some less costly process, such as barging away to sea, or tipping into quarries, etc. The less handling or labour in the process the less cost. It is difficult to arrive at any definite conclusion as to what the average cost of destruction is, as in the returns so many varying elements are usually taken into consideration; but it may be assumed that 1od. per ton covers labour. The cost of burning the refuse is, of course, lessened if the clinker can be utilised at a profit either for mortar, flag-making, or other purpose. The cost is also much lessened if the heat generated can be usefully applied.

As to the utilisation of the heat generated, some exaggerations have been made as to the thermal value of house refuse; but there is no doubt that a greater use may be made of the heat generated than has hitherto pertained. This can be done by placing the boilers in more direct contact with the heat than in the flues, and by increasing the heat in the cells. The author suggests that the following trials should be made in order to arrive at an approximation of the so-called H.P. derivable from any refuse destructor:—

(*a*) Time of duration of trial.
(*b*) Total amount of refuse burnt.
(*c*) Refuse burnt per hour.
(*d*) Refuse burnt per square foot of grate area.
(*e*) Total gallons of water evaporated per hour.
(*f*) Quantity of water evaporated per square foot of grate area.
(*g*) Water evaporated per lb. of fuel at 80 deg. Fahr.
(*h*) Steam pressure.

If some such experiments as these could be made by the same individual with a number of destructors, and a fixed allowance of water evaporated per H.P., some valuable statistics would be produced. It must be remembered that house refuse as a fuel varies in quality in every town—it varies with the seasons, it varies daily and almost hour by hour."

THE NATIONAL TRUST.

ON Friday afternoon last week the annual meeting of the National Trust for Places of Historic Interest or Natural Beauty was held in the rooms of the Society of Antiquaries, Burlington House, Piccadilly, the chair being occupied by the Duke of Westminster, President of the Trust.

The hon. secretary (Rev. Canon Rawnsley) read a letter of apology for absence from Mr. Frederick Harrison who, in wishing all success to the movement, expressed the hope that some day it would be found practicable to preserve the Tower of London—the entire Tower, and all its wards and remains—from the desecration and risk involved in maintaining private families and troops within it.

In their annual report the Council stated that from the beginning of July, 1896, the Trust had been active, with most satisfactory results in all those branches of its work to which it was the object of its existence to devote itself. The undertaking which stood first in importance among those carried out by the Council was the purchase of Barras Head, near Tintagel. The Council wished it were possible to speak in an equally encouraging manner of the work which was being carried out at Alfriston, near Eastbourne. The old Clergy House there, which was an almost unique monument of the dwellings of the pre-Reformation secular clergy, was made over to the Trust for a nominal sum, and the Trust, acting always with the co-operation and valuable help of the Society for the Protection of Ancient Buildings, had continued, as far as the sum at their disposal had allowed, to carry out such work as was absolutely necessary for its preservation. This consisted of making the building water-tight, putting it into permanently safe condition, and effacing the damage caused by the division of the building into labourers' cottages. It was hoped the supporters of the Trust would not allow its first purchase to be rendered abortive through lack of funds to carry out the necessary work of maintenance. By deed of gift the Trust had become the Guardian of the Falkland Monument, which had been transferred to them by the Newbury Field Club, and was a comparatively recent memorial to Lord Falkland and others who fell in the battle at Newbury during the Civil War. The thanks of the Trust were accorded to Mr. W. G. Mount, M.P., for the relettering of the transcription, and to Mr. Valpy, of Newbury, who kindly took upon himself the expense of some small repairs necessary to the base of the monument. The cases in which the Council had acted by protest were numerous enough. The growth of popu-

lation in this country was accompanied by almost daily danger to some building or place of historic interest or natural beauty. When indispensable works of utility were being carried out, it was often the case that a little extra expenditure of care and thought on the part of those responsible for the planning, arrangement, and conduct of such works would obviate such needless acts of destruction or the careless defacement of natural scenery. A case in which the protest of the Trust, in co-operation with the Society for the Preservation of Ancient Buildings, was effective was that of a proposed addition to the almost unique group of buildings known as the Hospital of St. Cross, near Winchester. These buildings, the report remarked, have amongst their notable features an entrance gate and tower over it, a church—of Norman date—and a quadrangle, round which are grouped the dwellings of the inmates, with a cloister-walk on one side. They are situated about a mile from the city of Winchester, and are unspoiled by the existence of incongruous structures in their neighbourhood. Indeed, almost the only externally visible changes the buildings had had to undergo since they were completed by Cardinal Beaufort in the middle of the fifteenth century had been those of diminution, not of accretion, one of the four sides of the quadrangle having been pulled down in 1790. It was with great regret that the Council had been compelled to witness the destruction of one of the few remaining portions of the old Abbey buildings of Westminster under their very eyes. The old wall in Great College-street is the south boundary of the precinct of the Benedictine Monastery of Westminster, and from the day it was built until February, 1897, it existed practically unimpaired. In that month, however, a portion was pulled down in order to make way for a boarding-house for Westminster School, to be erected under the design of a well-known architect; and it is understood that the building scheme contemplated will involve the destruction of a further portion. This was pre-eminently a case, it would have seemed to the Trust, in which a compromise between the claims of antiquity and present utility might very well have been made; but here, again, it had once more been exemplified how easy and thought-saving it was to destroy; how unwilling were even those who had had the best opportunities for learning what the past had to teach, to take the extra trouble involved in providing for the preservation of its remains. The case of Peterborough Cathedral, again, was one in which the Trust joined in the protest against what it believed to have been the precipitate and ill-advised action of the Dean and Chapter. With regard to the Chelsea Embankment, the proposals of the London County Council as to the extension of the existing embankment, between Battersea Bridge and the Railway Bridge engaged the attention of the Council; and in this case they were able to obtain a modification of a scheme which seemed to them to include objectionable features. The original suggestion of the County Council contained, among others, the following two proposals: one, that the embankment should be taken in a straight line right across the reach, without any regard to the natural curve of the river; the other that the land so reclaimed should be used for building purposes. They had the satisfaction of subsequently receiving an assurance that the proposed embankment as shown on the deposited plans was arranged in conformity with the curve of the river, and that it was the intention of the Council to keep the land reclaimed as an open space. Parliament was, however, of opinion that no sufficient case for the expenditure of public money on the proposed embankment had been shown; and the scheme had therefore been abandoned. The movement for the preservation of open spaces was indeed one which engaged much of the attention of the Council. Among the numerous projects which had been set on foot during the present year to commemorate the Queen's long reign was one which had been promoted by this society in connexion with the Commons Preservation Society, the Kyrle Society, and the Metropolitan Public Gardens Associations. A joint circular was sent out to all the local authorities in the kingdom suggesting the idea that each locality, which was taking common action for the purpose of founding some memorial, should provide for itself a plot of ground or place of natural beauty or historic interest to be dedicated to the common use or enjoyment of its people. This idea had been acted upon in more than a hundred cases. The Town Council of Tamworth had recently acquired the freehold of the historic castle and once royal residence of Tamworth, which stood surrounded by its grounds and partly bordered by running water in the middle of the borough. Similar to this was the action of the Corporation of Rochester in undertaking to acquire the beautiful half-timbered building known as Eastgate House, to be preserved as a local museum, and of the Town Council of Tonbridge in acquiring the old gatehouse and castle, with its surrounding gardens there. Similarly the Corporation of Newcastle-upon-Tyne had obtained a lease of the old tower known as the Herber Tower, with a view of preserving it from destruction, and had also undertaken to prevent any further damage to the interesting old house known as St. John's Palace, in Henton Park. It was to the awakening of local bodies to a conscientiousness of the value of historic buildings and places in their own neighbourhood that they must look in a large measure for the preservation of such buildings as at present only too often disappear under the operations of individual speculators. Reference was made last year to the old Joiners' Hall, at Salisbury, an interesting half-timbered structure which could be bought outright for 600*l.* with a clear prospect of returning a moderate dividend on the outlay. Since making this announcement the Trust had had an offer to provide the purchase money required subject, of course, to a reasonable guarantee as to the proper management of the property, and a sub-committee was now engaged in studying the best practical means of carrying this proposal into effect.

The Duke of Westminster proposed the adoption of the report.

Sir Robert Hunter, in seconding, said that the first and main object of the Society was to hold interesting monuments and buildings for the benefit of the country. In that respect the Society stood alone. At their own doors, the London County Council, which could not be looked upon as a conservative body, had during the year appointed a special committee to watch over the ancient buildings and places of architectural or historic interest in London. That sub-committee had recommended that a register or list of buildings of historic or architectural interest in London should be kept; and it would remain to be seen what subsequent steps should be taken. It must be of very vital importance that London should know what interesting remains it possessed, and should have notice when any of them were threatened by removal or by the construction of any new buildings or railways. That this work should be taken in hand in its initial stage by the controlling body of the metropolis was a matter for sincere congratulation. The Council had issued papers to correspondents and friends in various parts of the country with the view of procuring something like a catalogue or register of interesting buildings and ruinous remains. Although no doubt local antiquarian societies had such records, there was no official or complete statement of the possessions of the country in this respect, and it was a matter of importance that such should be procured. Many of these places were in no way safe, and might be threatened at any moment. Another matter to which the Society had given attention was in connexion with the legislation which had been passed in other countries for the preservation of monuments, historic buildings, and beautiful scenery. In Ireland there was a much more effective Act for the preservation of these than existed in England. He did not know if the legislation which existed in France could be introduced in England, but he did hope that next session what legislation would be most appropriate would be considered, and that at least the Irish Act would be extended to England. He did not know that in the making of towns that the English stood forth as skilful. In all the new towns there was a tendency to radiate from the business centre in a formless, heterogeneous way, and any monuments or buildings with historic associations were ruthlessly destroyed in the process of making them. When one went abroad, even to towns of fourth or fifth-rate importance, one was impressed by the plenitude of public buildings, and generally by the conscientious effort to make the life of the community tolerable. These were conspicuously absent in all our large towns, but even in London there had been lately more of a desire to preserve what was left of history written in our buildings and ruins, and to make better provision of what they might call the amenities of public life.

Sir John Brunner, Bart., also spoke, and the report was ultimately adopted.

The Right Hon. J. Bryce, in proposing the re-election of the office-bearers of the Trust, mentioned three instances of the great destruction that had been caused to historical places. The first of these was that wrought on the only remains of Roman antiquity which they had in the neighbourhood of London. The present condition of the Roman camp at Wimbledon was due to an accident to some extent, but still it had suffered a great deal within the last twenty-five years. In India we came into possession of a most magnificent series of buildings, but destruction had to a great extent followed them. At Allahabad the great banqueting hall, which was a splendid example of the work of the Mogul architect, had been cut in two, and converted into a barrack. In a similar case, within the last fourteen years, the ancient castle of Northampton was destroyed in order to make room for the goods station of the London and North-Western Railway Company. These three occurred to him out of an immense number of cases. Surely it became them to bestir themselves in order to stop this process of destruction. He admitted that there were cases in which beauty of scenery must give way to matters of practical convenience, but there were other cases where the traditions of practical convenience were very slight. Even in cases where it might be necessary that a railroad should be made there were many precautions which might be taken to prevent it spoiling the beauty of the scenery. They would agree with him in thinking that the railway engineers required to be very carefully watched, and that there should be some better safeguard for ascertaining whether their undertakings would seriously injure the scenery, and, if it became necessary to sanction them, whether the injury which would be inflicted could not be mitigated by conditions imposed on their construction. These considerations seemed to suggest that there was a need for even wider action than what the National Trust was able to take. The functions of the Trust should be enlarged so as not only to accept gifts made to it, but also to undertake the duty of safeguarding these objects of national interest, and of agitating for their preservation, and oppose those who endeavoured to destroy them.

Sir Henry Howorth seconded the re-election of the office bearers.

Professor Geddes and Miss Octavia Hill also spoke.

A vote of thanks to the Duke of Westminster for presiding concluded the meeting.

Illustrations.

BUILDINGS IN DERBY.

THE subjects of our illustrations this week all relate to the architecture of the town of Derby, which forms the subject of the leading article, being No. VIII. of the series on "The Architecture of our Large Provincial Towns."

The buildings illustrated are the Town Hall, St. Mary's Church (by Pugin); All Saints Church, with a mediæval tower to which Gibbs attached a classic nave; the Deaf and Dumb Institution, by Mr. E. Ryley; St. Werbergh's Church, a modern Gothic church by Sir A. W. Blomfield, in which the ancient tower however is retained; the Free Library, by Mr. R. Knill Freeman, of Bolton; the Infirmary, by Messrs. Young & Hall; the Technical College, by Messrs. Waller & Son, of Gloucester; and the Gas Offices, by Messrs. Naylor & Sale.

All these buildings are referred to and commented on in our first article.

THE ROYAL INSTITUTE OF BRITISH ARCHITECTS.

A SPECIAL general meeting of this Institute was held on Monday, at No. 9, Conduit-street, Regent-street, Mr. H. L. Florence in the chair.

The alterations in the by-laws required to carry out the resolutions passed at the meeting of June 14 were duly confirmed, and it was resolved that the following paragraph be added to by-law 9:—

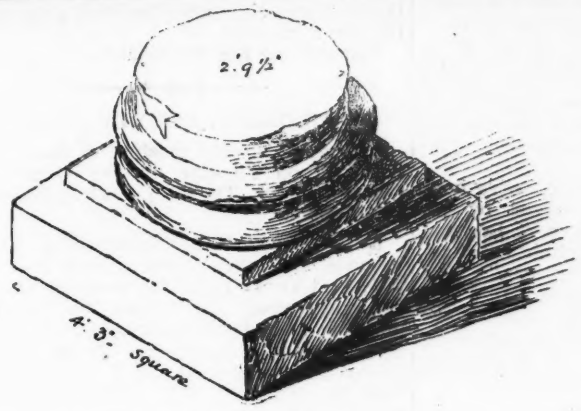
Provided always that when the Council of the Institute receive a unanimous recommendation formally submitted by the Council of any allied society that a practising member of the profession in their district is eligible and worthy of being elected a Fellow, the Council shall have power to elect him, his work being of sufficient merit, and that the operation of this provision be limited to a term of five years. The Council may also admit annually to the Fellowship, without ballot, the President or President-elect of any or all of the allied societies who may be eligible and apply for admission.

It was further resolved that clause (*a*), by-law 15, be added to as follows:—

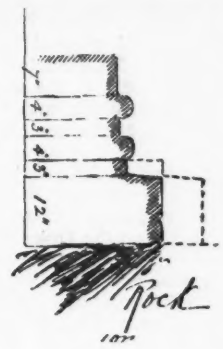
Provided always that the Council may, during their pleasure, dispense with the payment of an entrance fee in the case of non-metropolitan Fellows.

The Chairman then announced that the following candidates had passed the June preliminary examination, and had been registered as Probationers:—

C. G. Agate, A. R. Aitken, T. F. Amery, M. D. Barton, J. H. Belfrage, S. C. M. Bellairs, R. Berrill, A. W. Blomfield, J. S. Brocklesby, A. P. Brohier, H. Brown, J. T. Burt, T. J. Byrne, A. E. Catt, J. C. Clark, F. Clegg, W. E. Couch,



Base of Column discovered in Northgate-street, Chester, July 6, 1897.



Half Elevation and Section (the dotted lines show section through angles).

D. W. Crawford, A. G. Crimp, P. B. Dannatt, W. J. Davies, P. M. Davson, S. C. Densham, O. S. Doll, J. L. Donnelly, B. Drummond, A. A. Eedes, R. G. G. Ell, P. C. Farquharson, C. Finch, A. Foxley, C. George, D. M. Gordon, L. U. Grace, J. V. Gray, T. Gregg, W. G. Green, T. H. Griffiths, J. P. Hall, H. A. Hardcastle, G. R. C. Harding, S. Harrison, J. Haslam, R. H. Haslam, A. D. Haxton, C. H. R. Hennian, H. W. Hobbiss, H. R. Houchin, E. E. Insley, H. M. Jeffery, H. W. J. Jones, J. Keenan, F. L. Koelman, L. A. Loades, G. W. Lord, B.Sc., W. T. Loveday, H. B. McKenzie, W. P. Marr, R. H. T. Mayhew, A. J. Mays, L. Morris, P. E. Nobbs, M.A., E. B. Norris, E. G. Nye, W. M. Opie, A. Wyatt Papworth, Harry Prince, J. Quail, E. W. Ralph, J. G. Ross, H. A. Rowbotham, J. T. Scobie, G. M. Scott, E. S. Sharp, G. L. T. Sharp, W. B. Simpson, J. E. Spain, G. Spragg, E. G. Stevenson, E. J. J. Swindells, Noel Thomas, F. Thorpe, W. G. Trew, A. R. Wells, P. Westacott, A. N. Williams, C. L. H. Williams, W. N. F. Woodland, E. L. Wratten, F. Wrigley.

The following have passed the Intermediate, and been registered as Students, their names being given in order of merit :—J. A. Woore, A. H. Verstage, H. T. Bromley, L. E. Pryke, J. Goodland, H. Cooper, T. S. Gregson, C. W. Smith, E. F. Reynolds, H. J. Pearson, T. B. Ball, K. Gammell, T. M. Smith, A. H. Goslett, H. F. Ponton, C. Hale, F. Newman, W. Driffield, G. S. Nicol, T. E. Abbott, C. H. E. Bridgen, H. Cayley, E. V. Harris, C. E. White, A. Pickup, A. H. Foster, R. H. Butterworth, W. C. Butterworth, H. A. Douglass, G. R. Ellis, J. Embling, H. W. Featherstone, J. S. Heath A. H. Locock, A. E. Watson.

The following have passed the examination qualifying for Associateship :—W. S. Bates, J. H. Coram, J. R. Fleming, G. W. Hatcher, R. H. E. Hill, T. Honnor, E. W. Marshall, P. W. Meredith, P. Morris, S. S. Reay, C. D. Rochester, A. J. S. Shaw, H. C. Sinnott, Osgood Smith, H. C. Trimnell.

The meeting then terminated.

THE ROMAN COLUMN BASE AT CHESTER.

THE accompanying sketch shows the appearance and a sketch section of the mouldings of the base of a Roman column discovered on the 6th inst., in Shoemaker's-road, Northgate-street (not far from the crossing of the main street). It was found in excavating the foundations for a new building. It stands upon rock, which in this case appears to represent the original level of the ground, only about 2 ft. below the present level of Northgate-street, which is unusually near the modern ground level for a Roman ground line in a city ; in other words, the usual rise in the surface in cities seems to have been checked here by some local circumstances. A piece of entablature, and some other fragments, were found near the base.

CHURCH, HORNSEY.—The memorial stone has just been laid by Mrs. Creighton, wife of the Bishop of London, of the permanent Church of St. Peter, Hornsey, now being erected in Wightman-road. The new church is designed to accommodate 950 worshippers when completed, the total cost of building and furnishing being estimated at 10,000*l*. The architects are Messrs. James Brooks & Son, of London, and the builder is Mr. W. Parmenter, of Braintree. An illustration of the building appeared in our issue for August 15, 1896.

ARCHÆOLOGICAL SOCIETIES.

ROYAL ARCHÆOLOGICAL INSTITUTE.—At the general meeting of the Royal Archæological Institute on the 7th inst. (Judge Baylis, vice-President, in the chair), Mr. F. G. Hilton Price exhibited a silver water-bailiff's mace, 6 in. long, consisting of a tube or barrel, surmounted with the Royal crown. At the lower end of the tube is a small seal-shaped cap which unscrews. This tube or barrel is the receptacle for a silver oar, $4\frac{11}{16}$ in. in length. When the water-bailiff or constable was ordered to board a ship to arrest some offender, he would proceed to unscrew this end, withdraw the little oar, refix the cap and screw the oar into a hole in the cap, thus forming an instrument $10\frac{8}{8}$ in. in length. When closed it formed a constable's staff for service on shore. The hall-mark on the mace is nearly obliterated, but the shaft of the oar bears a hall-mark with date letter P, for the year 1830, and the maker's mark, "F. H." Chancellor Ferguson exhibited a hippo-sandal, into which he had placed a horse's hoof, showing it to be undoubtedly a horse-shoe, probably used to protect a broken or injured hoof. It was discovered in a Romano-British village near Kirkby Lonsdale in Westmoreland. He also exhibited two hippo-sandals of neo-archaic date, one from Poulton-in-the-Fylde in Lancashire, the other from the banks of the Solway, and both formed to enlarge the surface of the tread, so as to prevent the horse sinking in the soft mosses once peculiar to those districts. Chancellor Ferguson also exhibited three photographs of an iron chest which was recently brought to light in the post-office at Carlisle, being very similar to one in the Iron Room at South Kensington, and labelled "Coffer or deed chest, wrought iron, painted. German, sixteenth century." Mr. Somers Clarke read a paper on "Some Social Customs of the Copts." The paper, written in English by a Coptic gentleman in Cairo, Simaika Bey, was a brief account of the customs observed at weddings, christenings, and on the death of a relative, most of these usages being of the highest antiquity, some dating, unquestionably, from pre-Christian times. Many of these are fast disappearing. Professor Bunnel Lewis read a paper on the "Gallo-Roman Museum at Sens." It consists of stones discovered in excavating the walls of this city ; they had been taken from sepulchral monuments and other structures and used as building materials to fortify the place against attacks of barbarians. The stones may be divided into two classes — those that are inscribed and those that are sculptured. Amongst the former the most remarkable inscriptions, seven in number, relate to the family of Magilius Honoratus, which held a high position at Lyons also. Another epigraph is short but interesting ; it records the erection of a colonnade and covered walk ("porticus et ambulatorium") and a distribution of wine and oil by magistrates, probably Ædiles, at their own expense ("propriis impensis"). The reliefs include a great variety of subjects, mythological, domestic, and funereal. Most important among them is the one that represents a scene from the legend of Iphigenia in Tauris. In this series we find many persons engaged in the trades and occupations of daily life, *e.g.*, a bird catcher, a fuller, a tailor, a musician holding cymbals, and painters decorating the wall of a house. Architectural fragments are very numerous—cornices, capitals of columns, and friezes—indicating the great prosperity of the city under the Roman Empire.

ESSEX ARCHÆOLOGICAL SOCIETY.—The excursion of the Essex Archæological Society took place recently to Southminster and neighbourhood. The party assembled at Southminster Railway Station. At Asheldham, by the water tower, some earthworks were visited. These are nine or ten acres in extent, and Dr. Laver explained that it was impossible to say the date of their construction ; it was either British or Saxon, or it might be even Danish. Up to a few years ago this earthwork was not noticed. At Asheldham Church Mr. G. F. Beaumont read notes, and the company drove on to Bradwell-on-Sea. Luncheon was provided at the King's Head Inn, and at the close Mr. J. C. Gould read a brief sketch of the career of Sir Henry Bate Dudley, "parson, fighter, squire, magistrate, editor, author, playwright, poet, farmer, surveyor, or engineer." The party proceeded to "Othona," the site of a Roman camp, on which stands the ruins of St. Peter's Chapel. What remains of this old chapel, the walls of which are composed to a great extent of materials taken from the old Roman castrum, is now used as a kind of barn.

LINCOLN AND NOTTINGHAM ARCHÆOLOGICAL ASSOCIATION.—The members of the Architectural and Archæological Society of the counties of Lincoln and Nottingham visited Louth recently. Leaving Louth shortly after ten o'clock the party proceeded in wagonettes on an excursion in the marshes. On the outward journey Grimoldby, South Cockerington, South Somercotes, North Somercotes, Skidbrook, and Saltfleet were visited. At Grimoldby the church of St. Edith was inspected. It is a Gothic fabric. The chancel was restored some twenty years ago, and the interior thoroughly renovated in 1890. The church of St. Leonard at South Cockerington is noted for a fine chancel screen and an altar tomb, on which rests the effigy of Sir Adrian Scrope (who died in 1623), with the figures of his seven sons and two daughters at the side. Near the entrance of the church is an ancient holy water stoop. St. Mary's, South Somercotes, was next inspected. The tower contains three bells, two of which are dated 1423. At the next halting place (North Somercotes) the church of St. Peter was inspected, and at Skidbrook the pulpit of the time of Charles II., in St. Botolph's Church, was much admired. At Saltfleet the party had lunch. On the return journey the excursionists halted at Saltfleetby (St. Clement's and All Saints'), Theddlethorpe (All Saints'), Great Carlton, and Legbourne. The tower of the old church at the first-mentioned place alone remains, the other portion of the edifice having been pulled down some twenty years ago and the materials used in the construction of a modern building, but the Church of All Saints', Theddlethorpe, is a structure of the fourteenth century, containing several carved screens. St. John's Church at Great Carlton was also the object of a good deal of interest. It is an Early English edifice. The tower was rebuilt nearly forty years ago. The building contains a reredos, which encloses a representation of the Last Supper. At Legbourne the attention of the party was drawn to the remains of the old Cistercian Priory founded by Gilbert de Lekeburn before the reign of King John. The Church of All Saints' was also inspected. It was restored thirty years ago, several stained-glass windows being inserted.—The dinner at night was followed by a public meeting, at which the Mayor of Louth (Alderman H. D. Simpson) presented an address on behalf of the Corporation and burgesses. The address gave a cordial welcome to the members of the Association, and referred to its foundation at Louth in 1844. A paper on Louth Church was read by Mr. J. J. Cresswell, and Mr. R. W. Goulding (the local secretary) gave a paper on "The Lords of the Manor of Burwell." In illustration of Mr. Gresswell's paper a subscription list for the re-pewing and re-seating of the church, dated 1730, and the Bishop of Lincoln's charters, dated 1317, founding the chantry of Thomas de Luda in the chapel of the Blessed Mary, Louth, were exhibited ; and Mr. Goulding's paper was illustrated by several engravings, &c.—On the second and concluding day of the excursion, a visit was first paid to St. James's Church (the parish church) of Louth, the interesting features of which were pointed out and described by Mr. J. J. Cresswell. To all intents and purposes it is a fifteenth-century church, built in the following order : The chancel from about 1400 to 1445, the steeple from 1445 to 1500, the nave,

or at any rate the westernmost part of it, at some period between the completion of the chancel and the completion of the tower. Of the thirteenth - century church immediately preceding the present one, the north and south doorways remain. The present arcades also belong to this earlier church, but the pillars have been lifted some 3 ft. or 4 ft., and placed further apart, making, the new nave 8 ft. wider than its predecessor. The new church was lengthened by the addition of a large bay and two heavy piers. The bases of the thirteenth-century church were revealed by the excavations of the late Mr. James Fowler, in 1867-8. On the back of an archstone of the thirteenth century work were remains of an earlier moulding, which brings the earliest evidence of a site back to the time immediately succeeding the Norman Conquest, and contemporaneous with Alexander, Bishop of Lincoln, 1100. The party then left Louth in waggonettes on an excursion. They first halted at Keddington, where the church was examined. At Alvingham the church of St. Adelwold was visited. It is a small structure with a tower. Proceeding to North Cockerington the excursionists were informed that the church of St. Mary went to decay several centuries ago, and that the inhabitants had long used the priory chapel in the adjoining parish of Alvingham. The party then journeyed to Yarburgh, and inspected the church of St. John the Baptist. This church is an ancient structure, in the Pointed style, consisting of a nave, chancel, north aisle, and a western tower containing three bells. On one side of the western tower is a representation of Adam and Eve, under the branches of a fruit tree, on the trunk of which is the dart of death. The church of St. Clement's, at Grainthorpe, was next visited. It is chiefly noted for its fine tower with eight pinnacles. At Marshchapel the Church of St. Mary was visited. This church was restored in 1864, at a cost of 5,000*l.* It consists of a nave, chancel, aisles, pinnacled tower containing three bells, and is fitted with open oak seats with carved ends. The church also contains a fine chancel screen, and a monument on which are kneeling figures of Walter Harpham and his wife and daughter. The two churches of St. Mary and St. Bartholomew at Covenham were also visited. The church of St. Bartholomew was originally an extensive cruciform structure, but it is now a small antique fabric. On their return to Louth the party inspected the small church of St. Andrew at Utterby.

ENGINEERING SOCIETIES.

THE INSTITUTION OF JUNIOR ENGINEERS.—On the 3rd inst. a large party of the members availed themselves of Professor Ewing's invitation to visit the Engineering Laboratory at Cambridge in connexion with the University. All the apparatus was displayed in the various rooms; the engines, &c., were running, experiments were conducted on the testing machines, and on the elasticity and other instruments. After the reception by Professor and Mrs. Ewing, the members were shown over the whole building. The laboratory was only opened in 1893. The teaching is carried on by the Professor and five demonstrators, with workshop instructors in carpentry, pattern making, fitting, and forging. Lectures are given on the subjects of the Mechanical Sciences tripos: viz., Mathematics, Mechanics, Strength of Materials, and Theory of Structures; Principle of Mechanism, Heat and Heat Engines; Applied Electricity, along with practical work in Mechanics and Elasticity, Heat, Surveying, Drawing, and Electricity. In the teaching of these subjects a variety of machines and apparatus are employed, most of which have been made in the University workshops.

BUSINESS PREMISES, DUNDEE.—On the 9th inst. new business premises for Messrs. Smith Brothers were opened in Murraygate. The building has a frontage of 88 ft. and is five stories in height, with basement. The three uppermost flats have been let as dwelling-houses, while the first floor will be tenanted by the Dundee Conservative Club and by an insurance company. A central doorway gives access to these premises and to the dwelling-houses. The architect of the building was Mr. William Alexander, and the list of contractors is as follows:—Mason, Mr. R. Sheach, junr.; joiner, Mr. Alexander Young; plumber, Mr. D. Brown; plasterer, Mr. A. M'Ritchie; painters, Messrs. Petrie & Greig; slater, Mr. James Porter; heating apparatus, Mr. A. L. Peacock; electric lighting, Messrs. James Maxwell & Son.

THE ARCHITECTURAL MUSEUM AND WESTMINSTER SCHOOL OF ART.

THE annual general meeting of the Royal Architectural Museum and Westminster School of Art was held at the Museum, Tufton-street, Dean's Yard, Westminster, on the 9th inst., the Duke of Westminster, K.G., President, presiding.

The minutes of the last meeting having been read and confirmed, it was moved by Dr. Garnett, seconded by Mr. Sydney W. Lee, and carried, "That the Duke of Westminster be re-elected President for the ensuing year." The Vice-Presidents were also re-elected.

The Chairman having briefly replied, Mr. M. B. Adams, Hon. Sec., read the following report of the Council, which, on his motion, seconded by Mr. W. Pain, was adopted:—

"The Council of the Royal Architectural Museum and Westminster School of Art, in presenting their report for the year 1896, are pleased to state that, although the exceptionally favourable result of the previous year's operations has not been reached, there is a balance of income over expenditure amounting to 582*l.* 0s. 7d. As before, this result is due to the continued success of the School of Art, the fees from which amounted to 1,090*l.* 0s. 6d., whilst the grants from the Technical Education Board of the London County Council (500*l.*) and from the Science and Art Department (201*l.* 6s.) on the students' works, examination, and attendance, were larger than in 1895, so that the total receipts on account of the school were 1,821*l.* 6s. 6d., against 1,843*l.* 10s. 6d. in the previous year. There is very little fluctuation in the subscriptions to the museum, amounting in 1896 to 86*l.* 16s., and derived chiefly from subscribers who have from its earliest years been staunch supporters of the institution.

It was stated in last year's report that it was in contemplation to acquire premises adjacent to the museum for the purpose of building additional class-rooms, and the Council, after much consideration, decided to carry out this proposal, seeing that the opportunity for enlargement was not likely to recur. Plans were accordingly prepared by Messrs. Lee & Pain, and a contract has been entered into for the erection of the new building at a cost of 2,322*l.* The full expenditure, including the provision of lighting and warming apparatus, will probably amount to about 2,630*l.*, exclusive of architects' charges. The work is now proceeding, and is to be completed by Christmas next. It is hoped that the additional accommodation thus provided will not only relieve the museum from some encroachments necessitated by the growth of the School of Art, but that it will conduce greatly to the extended success of the school itself, which, from small beginnings, has been gradually developed until it has become known far and wide, attracting students from all parts of the United Kingdom, and even from Canada and the United States.

Towards this large outlay subscriptions have been received or promised amounting to 310*l.* 3s. 0d., including the sum of 100*l.* contributed with his customary munificence by His Grace the Duke of Westminster; 100*l.* has been transferred to the enlargement fund from the current account, and there is also a reserve fund of 300*l.* Consols; and the Technical Education Board of the London County Council have undertaken to advance 500*l.*, to be repaid by deductions from their annual grants, in four instalments. There is also a considerable balance at the bank, from which, perhaps, 1,000*l.* may be provided in the course of the current year. Nevertheless, a substantial amount remains to be found, and additional subscriptions from friends of the museum and school will be gratefully accepted." . . . .

Mr. J. H. Pollen moved, and Mr. W. R. Lethaby seconded, that the following gentlemen be elected as members of Council during the ensuing year, in addition to the President, the Hon. Treasurer (Mr. E. L. Somers Cocks), and Hon. Secretary, viz.:—The Earl of Wemyss and Mr. W. Carew Cocks (Vice-Presidents), Messrs. C. F. Hayward, F.S.A., Sydney W. Lee, W. Pain, J. Hungerford Pollen, M.A., J. P. Seddon, Aston Webb, and as representatives of the London County Council, Mr. Sidney Webb, Dr. Garnett, and Mr. W. R. Lethaby.

This having been agreed to, on the motion of Mr. Seddon a vote of thanks was accorded to the Chairman for presiding, and the Duke, in reply, said it was a matter of satisfaction to know that additional accommodation was being provided for the school, and that there was reasonable hope for believing that the new buildings would be completed by Christmas next.

Mr. F. Ford (the curator) announced that out of fifty-three candidates who went up for the South Kensington examination in drawing from the antique, thirty-six were successful, and of sixty-one for drawing from life, only two failed. Of the fifty-nine who succeeded, eight attained excellence, twenty-nine first-class, and only twenty-two second class. In anatomy, there were eighteen candidates, of whom thirteen succeeded.

The meeting then terminated.

THE LONDON COUNTY COUNCIL.

THE usual weekly meeting of this Council was held on Tuesday in the County Hall, Spring-gardens, Dr. W. J. Collins, Chairman, presiding.

Loans.—On the recommendation of the Finance Committee it was agreed to lend the Mile End Vestry 1,950*l.* for sewerage works in Brantridge-street, Eric-street, and Bow Common-lane; the Paddington Vestry, 13,000*l.* for wood-paving purposes in Formosa-street, Warwick-road, and Shirland-road; the Mile End Guardians, 1,110*l.* for the erection of a laundry at the infirmary; the Deptford Baths Commissioners, 2,200*l.* to defray the cost of an installation of electric light at the baths and washhouses; the Metropolitan Asylums Board, 94,462*l.* for additions to various hospitals.

The Works Department.—Mr. T. W. Williams asked the Chairman of the Council whether the resolution adopted on the motion of Mr. E. White recently, as to the future management of the Works Department, would take out of the hands of the Works Committee such works as were now in their charge under previous resolutions of the Council, and would put them in the hands of the manager instead. He desired to know whether such a course could be properly adopted without a rescinding of the previous decisions of the Council.

The Chairman said the resolution had been referred to the General Purposes Committee, and it would be disrespectful to that Committee for him to give any interpretation of it pending their report. No objection that the resolution was out of order was taken at the time it was moved and carried, and, in his opinion, it was in order. The Committee would report next week.

Schedule of Prices for Jobbing Works.—The General Purposes Committee reported as follows, the recommendation being agreed to:—

"The Works Committee, in a memorandum dated the 21st ult., informed us that on June 1 the rate of wages of labourers was increased ½d. per hour, and that the manager had reported that such increase of wages was equivalent to 2 per cent. on the total cost of the jobbing works, including labour and materials. In November last a similar increase to the rates per cent. above the schedule of prices was agreed to by the Council in consequence of the rise in wages of bricklayers, carpenters, plumbers, &c. In the circumstances we see no alternative but to submit a similar recommendation in the present case. We accordingly recommend—That the rates per cent. allowed above the schedule of prices for jobbing works be respectively increased by 2 per cent."

Lighting the Embankment.—The Highways Committee recommended—"That the Council do approve the estimate for 22,000*l.* submitted by the Finance Committee, and that the Highways Committee be authorised to take all necessary measures for establishing, at a cost not exceeding 22,000*l.*, the electric lighting installation authorised by the Council's General Powers Act, 1893, for the Victoria-embankment (but not the ornamental gardens thereon), and the Waterloo and Westminster Bridges; and that for this purpose the Committee be authorised to obtain tenders and to enter into contracts on behalf of the Council."

Lord Onslow moved an amendment to refer the report back to the Committee, on the ground that the proposed expenditure was unnecessary and premature. The proposal to have the electric light was not made in the interest of the poor, but of wealthy persons driving between the West End and the City, and who did so mostly in the daylight. Gas was amply sufficient for the lighting of the Embankment, and the money required for the proposed installation would be better devoted to other purposes.

Mr. Hoare seconded the amendment, which gave rise to a long discussion. The Council divided, and there voted for the amendment 43, against 63.

Mr. Holland, M.P., then moved a further amendment, which was seconded by Mr. Goulding, M.P., requiring parochial contributions towards the cost of the Committee's proposal.

Mr. Holland's amendment was rejected by a show of hands; and Mr. Bicker-Caarten there-

upon moved an amendment for fuller particulars from the Committee. This was agreed to, and the Committee's recommendation, as amended, was then adopted.

The Water Question.—The adjourned report of the Water Committee relative to the evidence which should be given before the Royal Commission on the Metropolitan Water Companies was then considered. The Committee recommended the Council to pass the following resolutions as embodying certain main principles for the guidance of its witnesses :—

"(*a*) That in the opinion of the Council the water supply of the metropolis should not continue in the hands of private companies. (*b*) That in the opinion of the Council the undertakings of the metropolitan water companies should forthwith be purchased at the fair and reasonable value of the same, regard being had to the rights, special circumstances, and obligations of the companies. (*c*) That the management of the water supply should be effected either (1) by the London County Council supplying its own area directly and outside authorities in bulk at a fixed price ; or (2) by the London County Council supplying its own area only, and the outside authorities supplying their areas ; or (3) by a new body supplying directly the whole area both within and without the county. (*d*) That, in any case, as the County of London contains 87 per cent. of the rateable value and over 79 per cent. of the population of the whole area supplied by the metropolitan water companies, and will thus be liable for more than four-fifths of the purchase money, it is desirable that the London County Council should, in the first instance, be the purchasing authority on behalf of the population of the whole area concerned. (*e*) That if the undertakings of the water companies are not acquired, it is essential that effective powers of control should be given to the County Council, and, further, that the position of the companies should be reconsidered and the law amended, particularly as regards their power to make and recover rates and charges and divide profits, and their obligations respecting the supply of water."

Mr. Beachcroft proposed the following amendment to the recommendation (*a*) :—

"That in view of the reference to the Royal Commission it is undesirable that the Council should pass any further resolutions affecting the acquisition of the water supply of the metropolis ; and accordingly that the recommendation be referred back to the Committee for further consideration."

The Earl of Dunraven, in seconding the amendment, said that seeing the Council was so hopelessly divided on the subject he did not see how it was possible for them to send any recommendations as a corporate body. He suggested that members of the Council might attend and give evidence before the Commission as individuals.

On a division the amendment was defeated by 54 votes to 35.

Dr. Longstaff moved a further amendment to make resolution (*a*) read as follows :—

"That in the opinion of the Council the water supply of the metropolis should not continue wholly in the hands of private companies, but should be under effective public control."

This amendment was under discussion when the Council was counted out at ten minutes past seven.

ASSOCIATION OF MUNICIPAL AND COUNTY ENGINEERS :

ANNUAL MEETING.

THE annual meeting of the Association of Municipal and County Engineers was opened in the Town Hall, Westminster, on the 8th inst. Mr. F. J. C. May, C.E., of Brighton, the retiring President, presided at the opening of the meeting, and was supported by Sir A. R. Binnie, Chief Engineer to the London County Council, President-elect ; Messrs. C. Jones, Ealing ; E. Pritchard, Birmingham ; J. Lemon, Southampton ; H. Percy Boulnois, Liverpool ; T. de Courcy Meade, Manchester ; Lewis Angell, West Ham ; C. H. Lowe, Hampstead ; W. Weaver, Kensington ; J. P. Barber, Islington ; W. N. Blair, St. Pancras ; P. Dodd, Wandsworth ; L. H. Isaacs, Holborn ; C. Mason, St. Martin's-in-the Fields ; J. P. Norrington, Lambeth ; J. C. Radford, Putney ; G. R. W. Wheeler, Westminster ; J. T. Eayrs, Birmingham ; S. S. Platt, Rochdale ; A. M. Fowler, Manchester ; J. Lobley, Hanley ; J. Cartwright, Bury ; E. R. S. Escott, Halifax ; E. P. Hooley, Nottingham ; J. H. Cox, Bradford ; A. Creer, York ; O. C. Robson, Willesden ; T. Walker, Croydon ; C. F. Wike, Sheffield ; A. T. Davis, Shrewsbury ; T. W. Stainthorpe, Exton ; F. S. Button, Burnley ; J. W. Cockrill, Great Yarmouth ; S. Stead, Harrogate ; R. E. W. Berrington, Wolverhampton ; J. W. Bradley, Wolverhampton ; W. Brooke, Strood ; J. W. Brown, West Hartlepool ; Greatrex, West Bromwich ; A. H. Campbell, Canterbury ; H. J. Clarson, Tamworth ; G. E. Shore, Crewe ; W. Santo Crimp, Westminster ; C. H. Cooper, Wimbledon ; J. A. Crowther, Bootle ; J. Hall, Cheltenham ; G. B. Laffan, Twickenham ; T. Cole, Westminster, Secretary, and others.

Mr. T. Cole, Secretary, read the annual report of the Council, which stated that during the year ended April 30, 106 new members, consisting of 94 ordinary members and 12 graduates, had joined the Association. The number of members on the roll was 9 honorary and 703 ordinary members, and 77 graduates, making a total of 789. The balance-sheet accompanying the report showed a balance in hand of 411*l.*, and invested capital amounting to 490*l.* Since the last annual report two examinations had been carried out—the first at Liverpool, when 11 candidates were examined, and 9 satisfied the examiners, and were granted the Association's certificate ; the second at Westminster, when 36 presented themselves for examination, of whom 15 satisfied the examiners, and were granted the certificate. The committee appointed to consider the suggested amendments to the Metropolis Local Management Acts had reported that in view of the active steps that were being taken by various local authorities to obtain charters of incorporation, and the probable new legislation that would necessarily follow, it was not deemed desirable to advise any action being taken at present.

The President moved the adoption of the report, which was seconded by Mr. Lowe, Hampstead.

Mr. W. H. Savage, East Ham, suggested that the balance of 411*l.* in hand should be invested.

The President said there was a committee appointed to deal with financial matters, and the question would be brought before the Council at an early date.

Mr. May then vacated the chair in favour of the new President, Sir A. R. Binnie.

Mr. J. Lemon, Southampton, then proposed a vote of thanks to Mr. May for his services as President during the year, which was seconded by Mr. J. P. Barber, Islington, and adopted.

Sir Alexander Binnie, C.E., then delivered his Presidential address, in the course of which he sketched the history and progress of London, and of the improvements carried out by the Metropolitan Board of Works, including the construction of intercepting sewers and the removal of the outfalls to Barking and Crossness, the freeing of the bridges over the Thames, the construction of the Embankment, the placing of the fire brigade upon an effective footing, the opening out of new streets such as Northumberland-avenue, Queen Victoria-street, Charing Cross-road, and the inauguration of the system of open spaces, and the obtaining of the Act under which had recently been constructed the Blackwall Tunnel. In 1888 the London County Council was established. During the short period that the County Council had been in existence, and notwithstanding the natural opposition to any new body, it had done an enormous amount of remarkably good work. The public out of doors were perhaps too much in the habit of judging of the work of the Council solely by those controversial matters which were the subject of discussion at its weekly meetings, and either forgot or ignored the enormous mass of work which was performed by means of its committees without controversy, and which was work for the public good unanimously acquiesced in by all its members. During the last seven years a vast improvement had been effected in the purity of the river by the mode in which the sewage was discharged at Crossness and Barking, and by the establishment of precipitation works at these stations, and the removal to sea, twenty miles below the Nore, of about two million tons of sewage sludge per annum. This was a matter which had engaged their daily and hourly attention. No doubt great improvements had been effected, but yet they had not approached what they might hope to attain when they became better acquainted with the right mode of dealing with huge volumes of sewage. Turning to those duties which they had to discharge in relation to the great governing bodies with which they were connected, he felt that all of them must at times be actuated by a desire to promote a greater efficiency of the municipal and corporate bodies under which they served. Those bodies were to a great extent elected and deliberative assemblies ; but he thought it would conduce to the general welfare if there were less discussion of details and criticism of uncompleted work. To secure such a state of things the various bodies whom they served must be able to place the most perfect reliance and confidence in their professional advisers, and it behoved them one and all to endeavour by every means in their power to raise the social status of their profession. Their Association, by the certificated examinations which they had instituted, and the Institution of Civil Engineers, the general governing body of their profession, were now working on the same lines, and it was to be hoped that before long they would find that they received that confidence which their merits deserved.

On the proposition of Mr. Lewis Angell, seconded by Mr. C. H. Lowe, a vote of thanks was accorded to the President for his address.

Biological Purification of Sewage.

Mr. W. J. Dibdin, F.I.C., Chemist to the London County Council, then read a paper on the "Biological Purification of Sewage." After sketching the history of the development of the process of treating sewage by biological agency, he referred to the treatment of the sewage effluent at the works at the northern outfall, Barking Creek, where results never before anticipated were obtained. The fact that a bad effluent could be purified to a degree comparable in colour and character to that of a clean river water, and at a rate equal to one million gallons per day, came as a startling surprise upon the community, and although it was at first received with a considerable degree of doubt, the present experience throughout the country at many places where the coke breeze filters had been adopted had established the system as the most recent useful and economical advances of practical sanitation. During a period of a little over three years 500 million gallons of effluent were filtered at Barking. As this effluent contained 7 grains of suspended matter per gallon, a total of 2,232 tons of sludge of 90 per cent. moisture had been put upon the filter and entirely destroyed, as practically no suspended matters were in the filtrate. The enormous work accomplished led him to the conclusion that if the conditions were only favourably arranged there was no reason why the whole of the matters in suspension in the crude sewage should not be similarly treated. This suggestion was taken up by the Sutton District Council with the best results. A free supply of oxygen to support the minute living organisms which feed on the organic matter was the first point for consideration, and in order to secure this he arranged that only the coarse ballast which was rejected by a ½-inch mesh, should be used. The idea was first to ensure the coarse suspended matters getting into the whole body of the filter instead of forming a layer upon the top, and secondly, to also ensure the body of the filter being thoroughly aerated when the water was drawn off, it being impossible for such a coarse bed to become waterlogged. The experiment was commenced by turning the crude untreated sewage on to the bacteria bed on November 21 last, since when it had been almost constantly at work, at the rate of one million gallons per acre per day. The results had been all that could be desired, and after seven months' working the bed was now in as good a condition, and as free from nuisance as it was after the first filtering. While advances had been thus rapid by the process of treating the sewage by means of those organisms which fulfilled their life functions in the presence of oxygen, the complementary organisms, known as the anacrobic bacteria, had been at work. The now well-known septic tank system of Mr. Cameron, of Exeter, had been at work since August last, and at present appeared to be doing exceedingly well. It was true that the final purification was effected by the use of the coke breeze filter, which had thus been able to cope with organic matter which had undergone a process of purification.

Mr. Santo Crimp, Westminster, moved a vote of thanks to Mr. Dibdin for his paper, as he had the honour of being associated with the introduction of the Dibdin filter. He considered the phrase "coke breeze" unfortunate, as the filtering material was formed of cinders and not of coke, which was too expensive. He also pointed out that the average work of the filter was not more than half a million gallons

a day, and that the flow over the filter was a regular measured quantity, and not the varying flow which would have to be dealt with where the whole of the sewage was treated. He also wished to ask Mr. Dibdin the reason why the stream which received the effluent of the Sutton sewage was in such a disgraceful state below the Sutton sewage works.

Colonel Jones, V.C., who seconded, considered that the chief cause of failure in sewage treatment by land was leaving the sewage works to take their chance with some ignorant farmer or labourer, instead of treating them as a delicate piece of machinery.

Mr. Cameron, Exeter, said that it seemed to be quite overlooked that there was land *and* land for sewage treatment. It must be evident that land must perform the functions of a filter before the work desired could be accomplished.

Mr. Cooper, Wimbledon, having paid a tribute to Mr. Dibdin for the admirable way in which his filters were worked, endorsed the remarks of Mr. Santo Crimp as to the condition of the stream at Sutton.

Mr. Thudichum, Westminster, said that when working, the filters had regularly treated 1,166,000 gallons a day for six days a week.

Mr. Fowler, Manchester, said he was of opinion that the "microbe system" would fail to purify the difficult trade effluents met with in the sewage in Lancashire and Yorkshire towns.

Mr. Pritchard, Birmingham, said that he believed in the biological method, but at the same time was somewhat like the Local Government Board, desirous of making it perfectly sure by also having a small area of land properly prepared.

Mr. Greatrex, West Bromwich, said he was Surveyor to the Sutton District Council for three years, and the pollution of the stream below Sutton sewage works was not owing to those works, but from the district of Hewell, which discharged into the stream before reaching the Sutton works.

Mr. Smith, Sutton, also explained that they were only treating a portion of the sewage at Sutton by the Dibdin process.

Dr. Reid, Stafford, and other gentlemen having taken part in the discussion, the vote of thanks was accorded, and Mr. Dibdin replied to the various points raised in the discussion.

The Buckinghamshire Road System.

Mr. R. J. Thomas, C.E., County Surveyor, then read a paper on the Buckinghamshire road system of the equalisation of Highway Rating. He said that to relieve the inequality of rating in the case of parishes which from their isolated position, distance from railway stations, or other reasons, had no roads coming within the definition of a main road, the County Council had adopted a comprehensive scheme for equalising the burden of highway rates by taking full advantage of the powers given under Sec. 11 of the Local Government Act, 1888, the contributing the cost of every public highway upon the basis of an average of the expenditure by each parish during a period of three years, subject to his certifying that such roads had been repaired and maintained to his satisfaction and in accordance with rules and instructions issued to each surveyor.

After a prolonged discussion it was resolved, on the motion of Mr. Campbell, Canterbury, seconded by Mr. Mann, Sevenoaks, "that the Parliamentary Committee of the Council of the Association take into their consideration the whole question of the systems of maintenance and the varying forms of administration of main roads, and the resolutions subsisting between the County and District Councils, with a view of making such representations as they think fit to the proper authority, and report their action to a future meeting of the Association."

Messrs. W. H. Savage, East Ham, and T. L. Lewis, St. George's, Bristol, were re-elected auditors; and the scrutineers and honorary district secretaries were re-elected.

The meeting then adjourned.

Annual Dinner.

In the evening the annual dinner was held at the Trocadero Restaurant, Piccadilly-circus, Sir Alexander Binnie presiding.

The loyal toasts having been honoured,

Dr. Rentoul, M.P., proposed the toast of "The Municipal Corporations of the Country," the Mayor of Eastbourne briefly responding.

Mr. B. Hopkins then gave the toast of the evening, "The Association of Municipal and County Engineers." The Association began its existence in a very humble manner about twenty-five years ago, and the early efforts of its members were beset with many difficulties. But the progress of the Association had been very marked; it now had an effective membership of 800, it was an incorporated Association, and it was doing good work in examining young men in those departments of study which were most necessary to a municipal engineer. The existence of the Association had had the effect of raising the status of municipal engineers throughout the country. The speaker, in conclusion, paid a tribute to the retiring President, Mr. May, for his efforts on behalf of the Association.

The Chairman, in response, said he had served many municipalities, and among them a black municipality, from whom he had received all the consideration and respect that could be expected even from the most enlightened municipalities of this country.

Mr. Lewis Angell, the first President of the Association, proposed the toast of "The Visitors." There were, he said, only two remaining members of the Association who were present at their first meeting, viz., Mr. Lowe and himself. The Association had been the means of disseminating a great deal of useful information.

The Master of the Carpenters' Company and Dr. Shirley Murphy replied, and the toast of "The Press" having been honoured, the proceedings terminated.

The proceedings of the annual meeting were resumed in the Town Hall, Westminster, on Friday morning, the 11th inst., Sir A. R. Binnie, C.E., President, occupying the chair.

Mr. E. J. Silcock, Assoc.M.Inst.C.E., King's Lynn, presented a paper on tramway haulage, condemning both horse and steam traction; the steam engine occupied as much space on the road as horses, and wore the rails by an extra set of wheels travelling over them, carrying a load of about fifteen tons; and its steam, smoke, dust, and noise together, formed a great nuisance, not only to the passengers, but in an even greater degree to other persons using the roads and living in houses abutting on them. Oil, gas, and compressed-air motors had been tried, but hitherto the success attained had not been very great. It appeared that there were not great hopes of making a compressed-air motor commercially successful. The disadvantages of cable traction were that the cable had to be hauled whatever the amount of traffic might be, involved a central rail with slot, and the inconvenience caused by a broken cable was very consideration. Electric traction hitherto had been mostly developed in the direction of overhead conductors. The accumulator system had not attained any great degree of success, chiefly owing to defects in the accumulators. The conduit electric system had the advantage over the accumulator system on nearly all the points named; but the slot in one rail was objectionable on various grounds. The overhead electric had been the most successful of the methods of applying electric power to tramway haulage, and, taken all round, it undoubtedly met the requirements of a tramway service more than any other. The chief objection to the system was the unsightliness of the overhead wires, which, no doubt, at first sight did offend the eye; but this was one of the things met with in large towns which, although ugly, soon became unnoticeable by reason of their great utility.* On the score of first cost, it had the advantage of a saving of 2,450*l.* per mile over the underground conduit. The cost of haulage on the Birmingham cable system was 6·35d. per car mile; and on the Roundhay electric tramway, 5·76d. per car mile, exclusive of capital and renewal account charges.

Mr. E. Pritchard, Birmingham, thought the horse was not yet doomed to extinction where they had easy roads and light loads. Although he had been the means of introducing nearly one hundred steam locomotives into Birmingham he could not say very much in their favour.

Mr. Price, Birmingham, said the Committee of the Birmingham Council which visited the Continent decided they would not permit the overhead system in Birmingham.

Mr. Cotterell, Great Yarmouth, said he had recently recommended the overhead electric system for a scheme of four miles of tramways at Yarmouth.

Mr. Lobley, Hanley, said that although he was at first prejudiced against the overhead system he was not in Boston, U.S.A., for twenty-four hours before he ceased to notice the unsightliness of the wires.

Mr. J. T. Eayrs, Birmingham, said they could not lay down a universal principle for underground conduit or overhead trolley which was suitable to every place. The decision with regard to Birmingham would no doubt answer admirably, but if they came to smaller towns and cities the great expense of putting down an underground conduit would be fatal to any successful scheme of tramway working.

Mr. Harpur, Cardiff, said he could not conceive in a large town that the overhead electric system would be tolerated.

The vote of thanks having been accorded, Mr. Silcock replied to the points raised in the discussion.

Mr. L. H. Isaacs, Assoc.-Mem.Inst.C.E., Surveyor to the Holborn District, read a paper on "Tramways laid in Asphalt Carriageway Pavements in Berlin." He said the new system which was being tried in Berlin was mainly, if not entirely, dependent upon the absolute rigidity of the tram rails. No movement or vibration in them was permissible. The depth of metal of the rail from the top to the under side of the bottom flange was 6 in., the width of the latter was 4⅝ in., and the width at top, including the groove in which the flange of the wheel runs, was 4½ in. The method of laying the rail in conjunction with asphalt pavement was as follows:—The bottom flange of the rail rested upon a layer of mastic asphalt ¾ in. thick, and the same material 2 in. wide was placed next the upper flange and on each side thereof, the theory being that the mastic acted as a cushion or buffer, and received the vibration which might be occasioned by the passage of the tramcars or the ordinary wheeled traffic proceeding over the surface of the road. The result of this method of dealing with the subject, after two years' experience, was most excellent.

Mr. Boulnois, Liverpool, proposed a vote of thanks; but confessed in looking at the rail that he feared its renewal, embedded, as it appeared to be, in concrete, must be an exceedingly costly and troublesome affair.

Mr. Fowler, Manchester, seconded the proposition, which was supported by Mr. Pritchard, Birmingham, and others.

Mr. Barber, Islington, said he thought the success of the Berlin tram lines was entirely due to the police regulations in keeping off the rails and the tramway track the other vehicles in the streets. If a tramway of that description was laid in the Metropolis, where no such restriction of the ordinary traffic would be possible, he ventured to think it would be found quite unsuitable.

Mr. Price, Birmingham, said the character of the traffic in Berlin was mostly of the light carriage order, such as in the West End of London.

Mr. Harpur, Cardiff, said he had made inquiries into the tramway system of Berlin, and had come to the conclusion that the police regulations had everything to do with the success of the system there.

Mr. W. Nisbet Blair, St. Pancras, was of opinion that Major Isaacs would hesitate to lay this form of tramway in Gray's Inn-road.

Major Isaacs, in replying to the vote of thanks which was unanimously accorded, said a trial length would be tentatively laid in Theobald's-road, and if it proved successful it would be extended to the whole of that road, and to other roads in his district.

Brick Paving for Carriageways.

Mr. J. T. Eayrs, C.E., of Birmingham, next presented a paper on "Brick Paving for Carriageways." He said the question of paving roads with bricks had received very little attention in England, although this country was justly celebrated for the quality of its bricks. The suitability of bricks for paving purposes depended upon the nature of the clay from which they were made, method of manufacture and burning. The first point to note was the quality of the clay, the composition of which varied very considerably in different districts, but most bricks were made from a hydrated silica of alumina, generally containing traces of magnesia, iron, lime, and potash. Lime in excess was very injurious to paving brick, as it was changed to caustic lime in burning, and a small amount of moisture would cause it to slake and disintegrate the brick. A small amount of

* To this we entirely demur. People are getting to dislike them more and more.—ED.

magnesia aided in producing vitrification. The detailed results of analyses of clay were not easy to obtain, but the following might be taken as representative of their class :—

	No. 1.	No. 2.
Silica	60·31	61·46
Alumnia	23·77	24·84
Peroxide of iron ...	7·96	7·5
Soda and potash ...	2·42	·32
Lime	2·50	—
Magnesia	1·75	2·42
Water, &c.	1·79	3·46

The points to which attention should be directed in selecting a brick for paving purposes were (1) uniformity of size and shape, (2) absorption, (3) specific gravity, (4) transverse strength, (5) crushing strength, (6) abrasion. With regard to size, there was no reason why the English standard size of 9 in. by 4½ in. by 3 in. should not be adopted for street paving. In America the sizes varied considerably, the largest being 9¼ in. by 4½ in. by 3¼ in., and the smallest 7½ in. by 3½ in. by 2 in. The square edges appeared to be most in favour, and they would certainly form better joints, be less noisy, cleaner, and would be better for washing and scavenging purposes, but the sharp arrisses would be more likely to be chipped by horses than the rounded nosings. Where tramways were laid a special brick was made to fit the well and head of rail which made a close joint and kept the paving level with the metals. The test for absorption was one of the most important factors in determining the life of a brick pavement as the continued action caused by wet and dry weather, freezing and thawing, tended to disintegrate the brick and the less absorbent it was the less harbour for filth and decaying organic matter. The average American specifications required that bricks should not absorb more than from 1½ to 3½ per cent. of moisture in twenty-four hours. The transverse strength, where this was required, varied from 1,600 to 4,000 lb., but generally about 2,000 lb. was considered sufficient. Importance was attached to the crushing resistance and the usual requirement was from 10,000 to 12,000 lbs. per square inch. The method of testing, however, varied considerably, some being made with half bricks, and others with 2-in. cubes. The recent experiments made at Watertown Arsenal showed the strength from 5,000 to 22,000 lbs. per square inch, and Professor I. O. Baker found that the average crushing strength of ten varieties of paving brick used in America was 7,150 lbs. per square inch. The crushing resistance found in samples of Staffordshire blue bricks tested by the late D. Kirkcaldy was from 15,000 to 18,000 per square inch. The abrasion test was one which was considered of the utmost importance, as it was well known that the greatest amount of wear on a road surface was caused by the pounding produced by horses' feet, and a material which would withstand this best would probably have the longest life. The test was usually made by placing bricks to be tested in a "tumbler" or "rattler," either with or without other materials. The bricks were weighed before being put into the "tumbler," and again after rattling for the specified period, the loss being noted. Mr. Eayrs next dealt with the laying of the brick, with regard to which he said the first point was the question of foundation. On this point American practice differed considerably. Although the majority of towns in which inquiries were made now provided concrete foundations, there were a great many where the foundation was either of macadam, broken ballast, slag, or gravel rolled down, and, in some instances, no foundation was provided beyond rolling the natural earth and laying a bed of sand for the bricks to rest upon. When the foundation was prepared a layer of clean dry sand was laid to form a bed or cushion for the bricks, varying in thickness from 3½ in. to ½ in. The thickness mostly accepted at the present time was 2 in., but there was evidence of this being reduced, and 1 in. would probably be found quite sufficient. The bricks were laid on the sand cushion in straight courses, either at right angles or to the kerbs or diagonally as might be desired. The bricks were laid right up to the kerbs, without any channel courses. The usual course was to lay the bricks solid end to end and side to side, without leaving any interstices, and, generally speaking, it was found that, owing to the bricks not being perfectly true in shape, there was sufficient space between the joints—even when laid close—to allow for the subsequent filling. This plan was adopted in 81 per cent. of the towns from which inquiries had been made. The remainder of the towns left a space of about ¼ inch between the joints to allow for filling and grouting. In order to avoid cutting bricks for closers, some engineers had special bricks made of ¼, ⅓, ½, ⅔, and ¾ lengths. When the bricks were laid, and before any filling or grouting was done, the paving was either rammed with a hand rammer, or rolled with a steam or horse roller. Where rolling was adopted, the generally accepted weight was from five to seven tons, although there were several rollers of 10 tons and upwards. Where steam rollers were not used the rollers were drawn by men, probably to prevent displacement of the bricks by horses' feet, before filling and grouting. There seemed to be the same divergence of opinion amongst American engineers as with English as to the best kind of filling or grouting material, and opinion seemed to be about equally divided between cement, pitch, and sand. When the paving was finished, rolled, and grouted, it was then covered with clean, coarse sand from ½ in. to 1 in. in thickness, and allowed to remain for about a fortnight, during which the traffic was allowed to pass over it, when it was all swept off, and the work was completed. As to durability, the opinion of American engineers was that fifteen to twenty years was the life of the pavement under ordinary conditions. It must not be forgotten, however, that the climatic conditions in America were much more severe than in this country. Engineers were practically agreed that brick paving for carriageways was growing rapidly in public favour ; it offered a minimum amount of resistance to the passage of traffic, and inflicted a minimum amount of wear and tear on horses and vehicles ; it was practically impervious, and therefore perfectly sanitary ; was easily cleansed, and required far less scavenging than any other paving ; it could be washed without injury, or becoming slippery when wet ; was readily taken up and relaid ; reasonable in first cost and maintenance ; and had a life which compared favourably with other materials, such as asphalt, wood, &c.

Mr. W. Nisbet Blair, St. Pancras, in proposing a vote of thanks to Mr. Eayrs, said he had heard, from time to time, of this American brick pavement, and had felt rather sceptical of the advantages claimed for it. He felt until they could actually see these bricks and judge for themselves what they looked like, it was impossible to form an opinion. He was not aware that the strength of bricks to resist crushing was anything like that given in the paper, but he thought the strength of the brick should be determined as the point at which cracking commenced.

Mr. Campbell, Canterbury, said with brick-paved roads they got an easier traction than with granite, but he thought it would be both more slippery and more noisy. In the course of further discussion, Mr. Hall, Cheltenham, said he had paved crossings with brick in Cheltenham with complete success ; Mr. Lobley, Hanley, had not a favourable experience of footpaths paved with bricks ; Mr. Crowther, Bootle, said he had had two tests with different kinds of brick, and in both cases they were complete failures.

Mr. Price, Birmingham, considered that if bricks were used they would have to set up very elaborate laboratories for testing purposes ; and Mr. Montgomery said that a standard brick would have to be insisted on, and if that were done he believed they would have a material which would wear longer than any other in use to-day.

The vote of thanks having been passsed,

Mr. Eayrs briefly replied, and other papers having been read, the meeting adjourned.

APPLICATIONS UNDER THE 1894 LONDON BUILDING ACT.

AT a recent meeting of the London County Council, the Building Act Committee reported that they had considered the undermentioned applications under the London Building Act, 1894, and had arrived at the following decisions. Those applications which have been agreed to are granted on certain conditions :—

Lines of Frontage.

Dulwich.—That consent be given to the erection of a one-story shop in front of a proposed building at No. 116, Lordship-lane, East Dulwich, at the corner of Bassano-street, on the further application of Mr. E. J. Strevens on behalf of Messrs. Golden.

Dulwich.—That consent be given to the erection of a one-story addition to the office at Westwood House, No. 47, East Dulwich-road, Goose-green, on the further application of Mr. F. A. Powell on behalf of Messrs. Batey & Co., Limited.

Fulham.—That consent be given to the erection of a two-story building on the south-east side of Harwood-terrace, to abut upon Imperial-road, on the further application of Mr. C. Collins.

Hackney, North.—That consent be given to the erection of buildings upon part of the forecourt of Nos. 26 and 28, Shacklewell-lane, Kingsland, on the application of Mr. J. R. Vining on behalf of Messrs. Lloyd, Attree and Smith.

Hackney, North.—That consent be given to the erection of a bath-room upon the present one-story addition at the rear of No. 97, Church-street, Stoke Newington, to abut upon Defoe-road, on the application of Mr. W. J. Galloway on behalf of Mr. Jarrett.

Islington, North.—That consent be given to the erection of bay windows to four semi-detached houses on the south-west side of Sunnyside-road, and also to the construction of wooden balustrading and other woodwork to the porches of those houses, on the application of Mr. W. Graves.

Kensington, South.—That consent be given to the erection of a glass and iron covered-way in front of the porch at No. 10, Tor-gardens, Campden-hill, on the application of Mr. T. B. Reynolds.

Lewisham.—That consent be not given to the erection of two houses on the north side of Bradgate-road, Catford-road, and of two other houses on the south side of a road skirting Ladywell Recreation Ground, such four houses to flank upon Doggett-road and Silvermere-road respectively, on the further application of Mr. F. Witt, on behalf of Messrs. Johnson and Aldridge.

Marylebone.—That consent be not given to the erection of three cottages with projecting upper stories, oriel windows and barge boards on the east side of Ranston-street, Lisson-grove, on the application of Mr. L. Ambler, on behalf of Mrs. G. M. Freeman.

Marylebone, East.—That consent be given to the erection of a porch, and a two-story oriel window over same, in front of a proposed new wing to the Middlesex Hospital, to abut upon Nassau-street, on the further application of Mr. K. D. Young, on behalf of the Weekly Board of Middlesex Hospital.

Marylebone, East.—That consent be given to the erection of a porch in front of No. 18, Queen Anne-street, on the application of Mr. W. H. White on behalf of Mr. F. G. Bridgman.

Marylebone, East.—That consent be given to the erection of a porch in front of No. 20, Queen Anne-street, on the application of Mr. W. H. White on behalf of Mr. J. Boyton.

Paddington, North.—That consent be given to the erection of a church on the west side of Saltram-crescent, St. Peter's-park, with two projecting porches to abut upon Croxley-road, on the further application of Mr. W. A. Pite on behalf of the Rev. W. P. Legg, M.A.

St. George, Hanover-square.—That consent be given to the erection of enclosures to the present open porch in front of the Primrose Club, Park-place, St. James's-street, on the application of Mr. W. Whiteley, on behalf of the club.

St. George, Hanover-square.—That consent be given to the erection of a bay window at the first floor level in front of No. 11, Old Bond-street, on the application of Mr. S. R. Tatham, on behalf of Mr. M. L. Procter.

Wandsworth.—That consent be given to the erection of a house on the west side of Crieff-road, Wandsworth-common, at the corner of and to flank upon Killarney-road, on the application of Mr. E. L. Acworth.

Woolwich.—That consent be given to the erection and construction of a wooden porch, with tiled roof, at the new Health Refuge, Parkdale-road, Plumstead, on the application of Mr. W. C. Gow, on behalf of the Vestry of Plumstead.

Hackney, North.—That consent be not given to the erection of a one-story shop upon part of the forecourt of No. 22, Cazenove-road, Stamford-hill, on the application of Mr. W. M. Dabbs, on behalf of Mr. T. Dabbs.

Hackney, South.—That consent be not given to the erection of a billiard-room at the rear of the Clapton-park tavern, Chatsworth-road, Clapton, to abut upon Clifden-road, on the application of Mr. C. J. C. Pawley on behalf of Mr. G. T. Poole.

Islington, West.†—That consent be not given to the erection of a two-story addition at No. 371, Holloway-road, to abut upon Camden-road, on the application of Messrs Lee & Pain on behalf of Dr. Smelt.

Lewisham.—That consent be not given to the erection of one-story shops upon part of the forecourts of Nos. 155 and 157, Stanstead-road, Forest-hill, on the application of Mr. G. K. Deakin on behalf of Mr. E. H. Bray and Mr. Griffiths.

Peckham.—That consent be not given to the erection of an addition at the rear of the Victoria Hotel, No. 79, Choumert-road, to abut upon Bellenden-road, on the application of Mr. W. S. Witherington on behalf of Mr. J. Cornell.

St. George, Hanover-square.—That consent be not given to the erection of an open iron verandah at the first floor level in front of No. 17, Eton-place, on the application of Mr. J. Darch, on behalf of Mr. A. Kennard.

St. George Hanover-square.†—That consent be not given to the erection of an open porch at Nos. 47 &

48, Dover-street, Piccadilly, on the application of Mr. G. D. Martin on behalf of Mr. W. G. Hornsey.

St. Pancras, North.—That consent be not given to the erection of two stone pediments and two finials to a one-story addition in front of the Bull and Gate public-house, No. 389, Kentish Town-road, Kentish Town, on the application of Mr. A. J. Perriam on behalf of Mr. H. Morgan.

Strand.—That consent be not given to the erection of a glass and iron covered way in Crown and Sceptre-court, leading to No. 32, St. James's-street, on the application of Messrs. J. Lyons & Co., Limited, on behalf of Mr. E. Sandow.

Wandsworth.—That consent be not given to the erection of a house with shop on the south side of East Hill to flank upon Melody-road, on the application of Mr. E. J. Golds.

Width of Way.

Newington, West.—That consent be given to the construction and erection of glass and iron roofing upon iron columns in the stable yard at Mr. Tilling's premises, Devonshire-street, Newington-causeway, on the application of the St. Pancras Ironworks Company.

St. George-in-the-East.—That consent be given to the erection of a dwelling-house with shop on the north side of Watney-passage at the rear of No. 52, Watney-street, and to abut also upon Winterton-street, at less than the prescribed distance from the centre of that street, on the further application of Mr. W. Stewart on behalf of Mr. C. Craze.

Chelsea.—That consent be given to the erection of a building upon the site of No. 76, Queen's-road, to abut upon, and at less than the prescribed distance from the centre of, Paradise-walk, on the application of Messrs. Beeston & Burmester, on behalf of Mr. T. L. Green.

Hammersmith.—That consent be given to the erection of an engine-house at the West Middlesex Waterworks premises in a public footpath leading out of Black Lion-lane, Chiswick-mall, at less than the prescribed distance from the centre of such footpath, on the application of Mr. M. W. Hervey, on behalf of the Company of Proprietors.

Hammersmith.—That consent be given to the erection of a projecting shop-front upon part of the flank of No. 93, King-street, at less than the prescribed distance from the centre of Bridge-avenue, on the application of Mr. D. Carmichael, on behalf of Mr. J. Broughton.

St. George, Hanover-square.—That consent be given to the erection of an open portico on the north-east side of No. 15, Grosvenor-crescent at less than the prescribed distance from the centre of Grosvenor-crescent-mews, on the application of Messrs. Waller & Co.

Walworth.—That consent be given to the erection of a building on the sites of No. 5, Victory-place, and a stable and yard adjoining, on the application of Mr. E. W. Parker on behalf of Messrs. Whitworth & Son.

Brixton.†—That consent be not given to the rebuilding of the "Perseverance" public-house, No. 51, Vassall-road, North Brixton, with the flank of the new building to abut upon Chryssell-road, on the further application of Messrs. Eedle & Meyers on behalf of Mr. W. S. Penny.

Bermondsey†.—That consent be not given to the rebuilding of "Samson's Castle" public-house, No. 210, Grange-road, to abut also upon Gregg's-place, on the application of Mr. T. H. Smith on behalf of Mr. Alderman J. C. Bell.

Walworth.†—That consent be not given to the erection of buildings on the north and south sides of a passage-way leading from Sayer-street to Lion-street, on the application of Mr. J. W. Brooker on behalf of Mr. Rodgers.

Space at Rear of, and Projections from, Buildings.

Hackney, Central.—That consent be not given to the erection of three blocks of residential flats on the east side of Clapton-square, at the corner of Clapton-passage, with a five-story bay window at the north-west angle of the blocks, and that the Council, in the exercise of its powers under Section 41 (1) of the London Building Act, 1894, do not allow the erection of the said residential flats with an irregular open space at the rear, on the further application of Messrs. Crewe & Hammond on behalf of the Metropolitan House Investment and Agency Company, Limited.

Opn Space about Buildings.

Kennington.—That sanction be given to certain deviations from the plan certified by the District Surveyor under Section 43 of the London Building Act, 1894, so far as relates to the proposed rebuilding of the "White Hart" public-house, No. 185, Lower Kennington-lane, at the corner of Cleaver-street, on the application of Messrs. Waring & Nicholson on behalf of Mr. W. S. Wright.

Woolwich.—That the Council do, in the exercise of its powers under Section 41 (1) (vi.) of the London Building Act, 1894, allow a modification of the provisions of that section with regard to open spaces about buildings, so far as relates to the proposed erection of a two-story house to be known as No. 38, Tormount-road, Plumstead Common, with an irregular space at the rear, on the application of Mr. G. E. Arnold.

Hampstead.—That the Council in the exercise of its powers under Section 41 of the London Building Act, 1894, do not allow a modification of the provisions of that section with regard to open spaces about buildings, so far as relates to the proposed erection of two blocks of residential flats on the east side of Holmdale-road, between No. 13 and Inglewood-road, with insufficient open spaces at the rear, on the application of Mr. J. Reynolds.

Line of Fronts and Width of Way.

Greenwich.†—That consent be given to the erection of dwelling houses on the north side of Ashburnham-road, Greenwich-road, westward of Lambard-cottages, on the further application of Mr. W. Sawyer on behalf of the President and Governors of Queen Elizabeth's College, Greenwich.

Marylebone, East.—That consent be given to the erection of a new porch with lavatory over, in front of Siena House, No. 7, Lodge-place, St. John's Wood, on the application of Messrs. Read & Macdonald on behalf of Mr. E. R. Hughes.

Hammersmith.†—That consent be not given to the erection of a drill-hall, with instructor's cottage, on the south side of Wood-lane, to abut also upon Bulwer-street, on the application of Mr. W. J. Shearburn.

Islington, West.—That consent be not given to the erection of a building at the rear of the "Victoria" beer-house, Chalfont-road, Liverpool-road, to abut upon Charles-street, on the application of Mr. A. Burr on behalf of the Highbury Brewery, Limited.

Rotherhithe.†—That consent be not given to the rebuilding of Nos. 77 and 79, Jamaica-road (being the "Crown and Anchor" tavern and a house and shop adjoining), to abut also upon New Church-street, on the application of Mr. C. H. Flack on behalf of Mr. B. P. Lucas.

Formation of Streets.

Wandsworth.—That an order be sealed and issued to Mr. W. H. Iles, sanctioning the formation or laying-out of two streets, each 40 ft. wide, for carriage traffic, to lead from Blackshaw-road into Alston-road, Tooting, on his application to the Council. That the names Bertal-road and Worsladeroad be approved for the new streets.

Wandsworth.—That an order be sealed and issued to Mr. A. Wellings, sanctioning the formation or laying-out of two new streets, each 40 ft. wide, for carriage traffic, to lead out of Mitcham-lane into Leverson-street, on his further application to the Council. That the names Blegborough-road and Fernthorpe-road be approved for the new streets.

Hoxton.—That an order be sealed and issued to the Vestry of Shoreditch refusing to sanction the formation or laying out, for foot traffic only, of a street 11 ft. wide, to lead from the western end of Mount-pleasant, East-road, Shoreditch, into Provost-street, on the application of the Vestry.

Buildings for the Supply of Electricity.

Paddington, North.—That the Council do approve of the plan submitted with the application of Mr. A. H. Walton, on behalf of the Metropolitan Electric Supply Company, Limited, for the construction of a one-story addition on the east side of the engine and dynamo room at the Company's generating station and works in Amberley-road, to abut upon the Regent's Canal Basin.

Kensington, South.—That the Council do approve of the plans submitted with the application of Mr. G. F. Grover, on behalf of the House-to-House Electric Supply Company, Limited, for the construction of an addition to the boiler-house at the Company's generating station and works in Richmond-road.

Hampstead.—That the Council do approve of the plans submitted with the further application of Mr. J. Hudson on behalf of the Vestry of Hampstead, for the construction of a doorway in the north wall of the Vestry's generating station and works at Lithos-road, and for permission to project, beyond the outer wall and over the footpath adjoining the London and North-Western Railway Company's premises, a girder to carry a travelling crane.

Conversion of Buildings.

St. George, Hanover-square.—That the Council do not consent to the ground floor and basement of No. 41, Albemarle-street, Piccadilly, being used for trade purposes without being properly separated from the part used as a dwelling-house, on the application of Messrs. Routh, Stacey, & Castle, on behalf of Mr. Robinson.

Recommendations marked † are contrary to the views of the Local Authorities.

RESTORATION OF NAUNTON BEAUCHAMP PARISH CHURCH, WORCESTERSHIRE.—This church was re-opened recently after the restoration of the nave and chancel. The church consisted, before the present restoration commenced, of a western tower, nave, chancel, and porch. The tower which is of a late Perpendicular character, has fallen into such a state of decay that it has been found necessary to remove the bells and shore up the walls, and in this state they at present remain, the funds collected being insufficient to fully effect the restoration of the tower. The restoration of the church was entrusted to the Diocesan Architect, Mr. William Jeffrey Hopkins, and the contractor was Mr. Job Stanley, of Broom.

Books.

The Transactions of the Society of Engineers for 1896. Edited by G. A. Pryce Cuxson, Secretary. London: E. & F. N. Spon, Limited. 1897.

THE members of the Society of Engineers should be very well contented with the present volume of their Transactions, since it contains several ably written papers on various subjects of general interest.

In his inaugural address, the President—Mr. Samuel H. Cox—confined his attention generally to gold mining, and although this subject is not studied professionally by a large number of engineers, yet indirectly there are many no doubt who are much interested in the subject and look forward with eagerness to the time when, by one improvement or another, their somewhat varying dividends may be more regular as well as augmented.

The Transactions contain an excellent paper by Mr. Percy Griffith on "The Water Supply of Small Towns and Rural Districts," which is rendered particularly acceptable because, while a large amount of information can be found relating to large water works, there is in reality very little published matter dealing with small works of this class.

A paper by Mr. W. G. Wales on "Discharging and Storing Grain" will also be found, and this was the means of producing a good discussion, one of the speakers being Mr. F. E. Duckham, the chief engineer of the Millwall Docks, who has had a very large experience with the appliances now employed for profitably and conveniently dealing with the grain imports to this country.

Other papers, such as the "Ultimate Purification of Sewage," by Mr. G. Thudichum, and "Railway Bridges for Branch Lines," by Mr. M. A. Pollard-Urquhart, are also worthy of mention, and help to make the Transactions quite up to the average of those previously published.

Hydraulic Cement: Its Properties, Testing, and Use. By F. P. SPALDING. New York: John Wiley & Sons. London: Chapman & Hall, Limited. 1897.

THIS book contains the result of a careful study of the nature and properties of hydraulic cement, and describes the various methods which have been proposed or are now employed for testing cement. The author discusses the many tests applied for determining the quality of cement, and points out the limitations within which they may be accepted as reliable indications of value. A good deal will also be found in the book relating to the use of cement in mortar and concrete, and a number of sample specifications are also given; but these refer to the present practice of leading American and not English engineers.

The work, which is carefully prepared, contains many good diagrams, and much practical information will be found in its pages.

Motor Cars. By A. J. WALLIS-TAYLER, A.M.Inst.C.E. London: Crosby Lockwood & Son. 1897.

UNFORTUNATELY, it cannot be said that the present moment is very propitious for the publication of a book on motor cars. Recently it has been pretty clearly demonstrated by our contemporary the *Engineer* that, notwithstanding all that has been said regarding the construction of self-propelling carriages, the industry from which we had been led to expect so much does not in reality exist at all. We do not doubt for a moment that the time will arrive when horseless carriages will be almost universally employed—displacing altogether the present mode of locomotion in our streets, but at present the whole matter is in embryo, and has to be developed much in the same way that the bicycle has been developed. The present motor cars are but the forerunners of what we are to have, just as Stevenson's "Rocket" was the forerunner of the modern locomotive. What time will be necessary for their development cannot be foreseen, but in this, as in similar cases, past experience teaches us it will be a question of years and not months.

Mr. A. J. Wallis-Tayler, in his book on motor cars, gives us a very complete description of practically everything that has been

done in the construction of these vehicles since the matter first received any real attention. He points out that the recent removal of the restrictions against travelling by mechanical means over roads of this country which have existed for so long will permit engineers to turn their attention to the subject, and to develop and perfect the power-propelling road-carriage, and thus establish a great industry. In our opinion no better proof of Mr. Tayler's knowledge of his subject could be found than in the following extract from his book: "At the present moment it seems to the author that a satisfactory power-propelled carriage for common roads has yet to be designed."

For a concise account of the various systems of propulsion which have been adopted for the vehicles now commonly designated motor cars or horseless carriages, we thoroughly recommend his book, since it deals exhaustively with all that has been done in this direction up to the present day.

Elementary Machine Construction and Drawing. By HENRY ADAMS, M.Inst.C.E., M.I.M.E. London: Chapman & Hall, Limited. 1894.

IN this little book—which contains very excellent drawings of various parts of machines—will be found all the questions usually set in the Elementary Examination on the subject. The work has been well done, the drawings are good and are all of practical utility, and the book, for the purpose of teaching drawing and giving the student a sound knowledge of the details of machinery, leaves nothing to be desired.

Tables Showing Loss of Head due to Friction of Water in Pipes. By EDMUND B. WESTON, M.Inst.C.E. D. van Nostrand Company, New York. 1896.

THE author of this little book, having been unable to find any formulæ for calculating the loss of head due to friction of water flowing in pipes that could be universally applied, commenced to make special investigations upon the subject himself, the result of which he now publishes in the form of two tables.

The first table gives the loss of head due to the friction of water in pipes having a very smooth interior surface, similar to lead and brass pipes, under different conditions of velocity and discharge, or the inclination necessary to maintain the given velocity and discharge. Pipes from $\frac{1}{2}$ in. to 3 in. diameter are considered in this table.

In the second table the pipes are assumed to have an internal smoothness similar to the new cast-iron pipes, and to have diameters from 4 in. to 5 ft.

The formulæ upon which all the figures in the tables are based are well explained, and the book will certainly be the means of saving a good deal of the time of those dealing with this department of hydraulic engineering.

TRADE CATALOGUES.

MESSRS. CHAPMAN & HALL (London) send us a useful catalogue of casts specially selected for schools of art, art classes, &c., illustrated by numerous small photographs, so that a selection can be made from it without actually looking over a collection of the actual casts.—— Messrs. Crosby Lockwood & Son (London) send us their new catalogue of scientific and technical books. —— Messrs. Boyd (London) send us an illustrated catalogue of their grates, combined with a statement of the information required by them in supplying grates for private and for public buildings. Among the grates figured are some of special character; some of the "independent" grates are very good (Nos. 152*a*, 170*a*, 222*a*, for instance); those supposed to be "of Gothic design" are bad, in fact none of those which profess to be in some special style are very attractive to us, while the plain ones which do not profess "style" really have that quality. The "Hob-grate" is a pleasing "revival;" and there are things in the catalogue to please a considerable variety of tastes.

DIPHTHERIA AND DRAINAGE. — The monthly report of the Sanitary Committee of the Cornwall County Council, after commenting on the prevalence of diphtheria in some of the rural districts, adds—"The disease at St. Mellion and Horsepool, in the St. Germans District, where there were five cases, is attributed to defective drainage. That is a matter that surely ought to command the immediate attention of the responsible authorities."

Correspondence.

To the Editor of THE BUILDER.

LISKEARD CHURCH TOWER.

SIR,—A competition drawing for a new tower, recently published in the *Builder*, serves to remind me to call your readers' attention to the fact that, in spite of the architect called in having reported that the old tower can be substantially repaired, and ought not to be destroyed, the rector and vestry seem determined to pull it down in order to secure a legacy which was left conditionally on a new tower being built.

The existing tower is considerably older than the body of the church, and is, in fact, the oldest monument in Liskeard, and it has suffered a good deal by carelessness in cutting away for alterations and for the bell-stage; but any competent architect will agree with Mr. Fellowes Prynne, who was consulted, that it can be so repaired as to last for centuries.

The Chancellor of the Diocese has (on the above grounds) refused a faculty for pulling down the tower, but the vestry, intent on the legacy of 1,000*l.*, and blind to "monumental interests," threaten to disregard this because no sufficient formal opposition was entered. But they denounce every opponent, not even sparing the Chancellor, as "actuated by interested motives." To such lengths will the fanatic Vandal go.

I have examined the tower myself, and I hope that architects will give the Chancellor's decision their moral support.

London, July 14, 1879. J. D. CRACE.

GENERAL BUILDING NEWS.

GENERAL HOSPITAL, BIRMINGHAM. — Princess Christian, as the representative of the Queen, opened the new buildings of the Birmingham General Hospital on the 7th inst. The structure is of red brick and terra-cotta, and has been erected from the designs of Mr. William Henman at a cost of 210,000*l.* The building has been fully described in our issues for March 19 and 26, 1892, and illustrations have appeared on March 26, 1892, and November 18, 1893. It may now be stated that the central pile is in the later Victorian style, with projecting wings flanked by towers and connected by transverse corridors, with a number of semi-detached blocks or pavilions harmonising in style with the central group, and extending over an area of some 500 ft. in length by 400 ft. in depth. The combined frontages measure 1,470 ft. The site occupies the whole of one side of St. Mary's-square, in the rear of the new Victoria Law Courts. Messrs. Barnsley & Sons, of Birmingham, have been the contractors. The number of beds provided in the hospital is 346. The two hydraulic passenger and bed lifts and the whole of the hand lifts were constructed by Messrs. Clark, Bunnett, & Co., Limited, London. The out-patients' waiting-hall has been specially treated by Mr. A. Whitehead, of Leeds; a rich brown majolica dado is carried round the room and round the columns, the upper part of the walls, columns, and arches being covered with "Eburite" faïence specially prepared by the Campbell Tile Company (Stoke-upon-Trent) and used here for the first time. It is a dull-glazed or "eggshell-glazed" material of a cream tint. The hospital is ventilated by mechanical propulsion on Key's system. The entering air passes through an outer warming coil, and then through the air-filtering, air-washing, and humidifying screen, which is self-cleansing by a continual trickle of fresh water. The air is afterwards further warmed by coming into contact with coils, clustered in batteries within the air-warming chamber, where also it can be instantly reduced in temperature by admitting filtered cold air through the bye-pass doors for the purpose. Secondary air warming coils are placed at the base of each flue, so that the air to each room may be warmed to any desired temperature while passing through them, and independently of the others. The pure air enters each room so as to be directed to the ceiling, the outgoing air passing off at the floor level, and being led to roof ventilators, where the outlet air-valves are so constructed as to place the whole air within the building under a slight pressure of about four ounces per square foot in excess of the outside atmospheric pressure at the time.

CHURCH, SHERINGHAM, NORFOLK.—A new church at Lower Sheringham has just been consecrated by Bishop Sheepshanks. The church has been built by Messrs. Bardell Brothers, of King's Lynn, from designs by and under the superintendence of Messrs. St. Aubyn & Wadling, architects, of London. The church consists of a nave 83 ft. 6 in. by 30 ft., with a chancel 42 ft. 6 in. by 30 ft. There are north and south aisles 71 ft. by 11 ft. 6 in., making a total width of 53 ft. There are also north and south chancel aisles 28 ft. by 11 ft. 6 in. At the west end of the aisles are porches 15 ft. by 10 ft.; there are also smaller porches at the east end of the aisles. The choir and clergy vestries will be in the north side of the chancel, the basement of the choir vestry only being built at present, forming a chamber for the warming apparatus. The nave has an arcade of four arches on each side. The chancel has two arches on each side. A wooden bell-cote, covered with oak shingles, rises from the roof at the west end of nave to a height of 100 ft. from the ground to the weathercock. The church is in the Early English style, built of brick, faced externally with flint, with brick and stone dressings. The inside walls are plastered, the arcade and dressings being of brick. The roofs are boarded and arranged for future panelling, and covered with slate. The altar is approached by seven steps. The floors of nave and aisles, also floor in chancel for future stalls, are laid with wood blocks. The porches are paved with mosaic. The chancel floor, at present laid with cement, is arranged for mosaic. The cost of the building up to the present has been 7,065*l.*

ADDITIONS TO SHEFFIELD CATHOLIC INDUSTRIAL SCHOOL.—The Lord Mayor of Sheffield (the Duke of Norfolk), accompanied by the Lady Mayoress visited on the 7th inst. St. Joseph's Home, in Howard-hill, Sheffield, for the purpose of opening recent additions to the building. At a cost of about 1,900*l.*, new baths and dormitories and another laundry have been provided. The design for the work was furnished by Messrs. W. H. Lancashire & Sons, architects, and the contracts were let out as follows:—Masonry and bricklaying, Messrs. D. O'Neill & Sons; carpentry and joinery, Mr. W. Lynn; plastering, Messrs. Hudson & Dore; plumbing, Messrs. Corrie & Sons; painting, Messrs. J. & J. Rodgers, and Mr. M. A. Topham; slating, Mr. W. Proctor.

RAGGED SCHOOL, BLACKBURN.—The foundation stone of the new Ragged School—to be erected in Bent-street, Blackburn—was laid recently by Earl Compton, M.P. The new structure is to be erected from plans drawn by Messrs. Briggs & Wolstenholme, architects, Blackburn. The cost is estimated at about 2,600*l.*

PROPOSED RESTORATION OF WITTON-LE-WEAR CHURCH, DURHAM.—It is proposed to restore and enlarge the parish church of Witton-le-Wear, from plans prepared by Mr. Hodgson Fowler. The total cost is estimated at 1,800*l.*

DRILL HALL, CHESTERFIELD.—A Victoria Drill Hall is to be built on the Allotments, Ashgate-road, Chesterfield, in commemoration of the Diamond Jubilee. The architect is Mr. Cecil Jackson, of Chesterfield. The estimated cost is 2,000*l.* The floor of the hall will be below the road level. The dimensions will be 150 ft. long by 55 ft. wide. At one end of the hall will be placed adjutant's offices, sergeant's room, committee room, and armoury. At the end of the hall over the volunteers' entrance will be a band gallery. The building will be heated with hot-water.

PROPOSED RESTORATION OF TRIMLEY CHURCH, SUFFOLK.—Trimley St. Martin Church, one of the two edifices standing in the churchyard of the two parishes of Trimley St. Martin and St. Mary, has for some time needed restoration, and Mr. J. S. Corder, of Ipswich, has examined the structure, and will report on the subject.

WESLEYAN SCHOOLS, DONCASTER.—On the 8th inst. memorial stones were laid of new Sunday schools now being built behind the Priory-place Wesleyan Chapel at Doncaster. The cost of the new schools will be about 3,000*l.* The plans were prepared by Messrs. Athron and Beck, architects, and the contract for the work has been let to Mr. J. Athron, builder, whose contract amounts to 2,735*l.* There will be a large assembly hall on the ground floor, with seven class-rooms.

CHURCH, WINNINGTON, CHESHIRE.—The new Church of St. Luke's, Winnington, was consecrated and opened recently by the Bishop of Chester. The new church is from the designs of Mr. J. L. Pearson, R.A., and was erected by Messrs. Beckett & Co., of Hartford. The church is 109 ft. long and 27 ft. 6 in. wide, and will seat 320 people. Red pressed brick has been employed throughout the building. The nave is 69 ft. long, and the chancel 34 ft. 3 in., with one step leading from the former to the latter, and with four steps to the altar. The main entrance to the building is through an open porch on the north side. The interior roof is of moulded pitchpine, the principals being supported on stone corbels. The windows are Gothic, and are glazed with cathedral tinted lights. The east window consists of three separate windows, each measuring 7 ft., while the west window is 15 ft. high, with four lights set in tracery. The floor is of wood blocks, and the aisles are of Staffordshire tiles. There is a priest's and a choir vestry, and the organ is elevated above these on a platform. Above the organ chamber is an archway, the columns being 16 ft. from the base to the summit, with an arch of 6 ft. Below the church is a parish room 27 ft. long and 12 ft. high, capable of accommodating 200 persons, and on the same level and beneath the vestries is a heating chamber vaulted over with brick. A tower and spire have been designed for the north side, but their erection have not yet been undertaken. The church furniture is of oak.

CHURCH, BROCCO BANK, SHEFFIELD. — The corner stone of St. Augustine's Church, in Brocco Bank, Sheffield, was laid on the 8th inst. Mr. J. D. Webster, of Sheffield, is the architect, and his design

is for a building in the Early English style. The church, which, apart from furnishing, will cost 7,700*l.*, will seat 650 persons. The nave will be 104 ft. long and 36 ft. wide, and the chancel 36 ft. by 28 ft. There will be an organ chamber and clergy and choir vestries. At the north-western angle of the nave there will be a tower, rising 95 ft. to the top of the parapet, and the entrance porch will be at the south-west corner of the nave. The roofs will be covered with Broseley tiles. The chancel floor will be laid in mosaic. The pulpit, the reading-desk, and the choir stalls are to be of oak. Mr. James Fidler, of Eckington, is carrying out the contract.

PRESBYTERIAN CHURCH, LIVERPOOL.—The dedication service in connexion with the new Presbyterian Church of St. Columba's, Smithdown-gate, Sefton Park, was performed on the 8th inst. The building, which has not yet been completed, is to accommodate 600 people on the ground floor and 40 in the gallery. The architects are Messrs. Woolfall & Eccles, Liverpool.

ALTERATIONS TO THE DRILL HALL, WIGAN.—Additions are being made to this building from the design of Mr. W. E. Vernon Crompton, architect, Wigan.

CONGREGATIONAL CHURCH, BEXHILL.—A new Congregational Church has just been opened in the Station-road, Bexhill. The building is warmed by Grundy's patent hot air system. It was designed to harmonise with the Victoria Hall, and has been carried out in red brick, with Elliott's patent stone dressings. The roofs are covered with green slates. The work has been carried out by Mr. Peter Jenkins, under the superintendence and according to the plans of Mr. Henry Ward, architect, of Hastings, whose design was selected in a limited competition. At the south side of the Chapel a private entrance leads to the vestry, which is situated at the extreme western end, and from here direct access is obtained to the dais, upon which the pulpit is placed. The vestry is also connected with the platform of the Victoria Hall. There is a gallery at the eastern end. This likewise has a raised floor and is approached by staircases on either side of the main entrance, access being obtained from the exterior by separate doorways. The whole building will seat 556 persons.

RENOVATION OF WALTON BAPTIST CHAPEL, SUFFOLK.—This building is being restored under the direction of Mr. Alfred Conder, architect, of London.

WESLEYAN CHAPEL, NEW HIRST, NORTHUMBERLAND.—The foundation-stone of a new Wesleyan Chapel at New Hirst, has just been laid. Mr. J. W. Taylor, of Newcastle, is the architect, and Messrs. Cocks Brothers, of Blyth, are the contractors. Only the school-room and class-rooms will be proceeded with at present. This building will involve an outlay of 1,100*l.* The new buildings are of Gothic design, and will be built of local stone. The gable of the school, next the main road, is treated in half timber work.

BONDED WAREHOUSE, BELFAST.—A block of buildings which has been erected by Messrs. Wm. Cowan, Limited, for the purposes of a bonded warehouse, on a site adjoining Great Patrick-street and Academy-street, Belfast, was opened on the 8th inst. The architects were Messrs. Græme, Watt, & Tulloch. The building is lighted by electricity, this portion of the contract having been given to Mr. George Combe. The gas engine has been supplied by Messrs. Crossley & Co., Manchester. The premises are 78 ft. long by 68 ft. in width, and are five stories in height; the total floor space is about two-thirds of an acre. In addition to the usual offices and space for vatting purposes, there is accommodation for about 10,000 casks. There are two large vats, which have respectively a capacity of 5,000 and 3,000 gallons. The builder was Mr. R. Corry.

PUPIL TEACHER'S COLLEGE, LIVERPOOL.—A Pupil Teacher's College is being erected in Liverpool for the Liverpool School Board. The college is being erected from the designs and under the superintendence of Messrs. T. Mellard Reade & Son, of Liverpool. The exterior is of buff terra-cotta. In the basement are the tea-room, cloak-room and recreation hall. There are three entrances on the ground floor—one in Pleasant-street, a second in Clarence-street, and a third in Green-lane. On this floor there is class-room accommodation for 275. The several class-rooms are fitted with sliding partitions. Class-room accommodation for 294 is provided on the first floor, besides a library. The second floor is devoted to science and art classes. There is a chemical laboratory for forty-nine students, 60 ft. by 23 ft., lined with enamelled bricks. The science, lecture, and examination hall is 51 ft. by 25 ft., and divisible into two by a screen. The art class-room is 37 ft. by 23 ft., and will accommodate fifty students. In the plans of the college a certain provision for boarders is made.

SCHOOL INFIRMARY, WITHAM.—The memorial stone for the infirmary at the South Metropolitan School, Witham, was laid on the 10th inst. Mr. Frank Whitmore is the architect, and Mr. Ernest West is the builder.

MISSION HALL, HULME.—On the 10th inst. the memorial stones of a new hall in connexion with the York-street Mission, Hulme, were laid. Plans were prepared by Mr. S. Crowcroft, and the building contract was let to Mr. J. Toole, Hulme. Seating accommodation will be provided for between 300 and 350 worshippers.

SCHOOLS, WEST MERSEA.—The West Mersea School Board have instructed Mr. J. W. Start, architect, of Colchester and Harwich, to prepare plans for a mixed school for 300 children, with central hall, and to utilise the present buildings, as far as possible, for cloak-rooms, heating chamber, &c.

BATHS, LAMBETH.—On the 9th inst. the Prince and Princess of Wales opened the new Lambeth Public Baths. The buildings, which are of red brick, are in the Kennington-road. The interior of the buildings is lined throughout with white glazed bricks, and they contain three swimming baths, a number of private baths, and a wash-house. The site comprises a superficial area amounting to 33,330 ft., the whole of which, with the exception of the yard to the boiler-house, is covered with buildings. The general accommodation is briefly as follows:—men's first-class swimming bath, 142 ft. 6 in. by 56 ft. 6 in.; clear size of pond, 132 ft. by 40 ft.; men's second-class swimming bath, 98 ft. by 42 ft.; clear size of pond, 90 ft. by 30 ft.; women's swimming bath, 64 ft. by 40 ft.; pond, 56 ft. by 25 ft. Nineteen men's first-class and 46 men's second-class private baths; 10 women's first-class and 20 women's second-class private baths, being a total of 95 private baths; and public wash-houses for 64 washers. The first-class swimming-bath has been arranged to adapt it for letting during the winter months for purposes of entertainment. The hall, when arranged for entertainments of any kind, will be entirely shut off from every other portion of the establishment, and will afford seating accommodation on the ground floor for 1,222 persons, and on the gallery floor for another 300. Mr. A. Hessell Tiltman was the architect.

SANITARY AND ENGINEERING NEWS.

SEWAGE SCHEMES, &C., PLYMOUTH.—Major-General H. D. Crozier, R.E., held an inquiry at Plymouth Guildhall on the 9th inst., the Town Council having applied to the Local Government Board to borrow 100,000*l.* for works of sewerage, and 40,000*l.* for purposes of scavenging and the provision of a depôt and refuse destructor on a portion of Prince Rock Estate. Mr. G. R. Strachan, partner with Mr. James Mansergh, civil engineer, described the plans, and said that in May, 1894, the sewerage system of Plymouth was thoroughly investigated by his partner and himself. Several of the outfalls were at present in very undesirable positions. The Laira sewerage was carried out on a rough system; the tanks were greatly complained of in the district, and it was admitted on all hands that the tanks were not suited for the purpose they were now used. They were insufficient in size, and altogether bad for the purpose of sewage disposal. The tanks were also in an undesirable position. The scheme now before the Local Government Board provided for a population up to 135,000. Much of the ground now used for sewerage purposes was sewage-logged. The gradients for the new sewerage scheme were ample for the outfalls. The storage tank would hold a million and a quarter gallons, and provision was made for another three-quarters of a million. At any state of the tide storm-water would be able to flow into the tanks; in fact, the scheme provided for storm-water being conveyed into the sea almost independent of the tanks. The sewage would be well out to sea before the time came for the tide to turn, and thus none of it, or very little, would be returned with the tide.—The Inspector then proceeded to hear evidence with reference to the proposal to borrow 40,000*l.* for purposes of scavenging and for the provision of a depôt and refuse destructor on a portion of the Prince Rock Estate. The Borough Surveyor (Mr. J. Paton) explained the plans. After some discussion, the Inspector intimated that he would visit the Prince Rock Estate, and in due course submit his report to the Local Government Board.

MANCHESTER SEWAGE.—At the monthly meeting of the Mersey and Irwell Joint Committee, held recently, a proposition was moved by Mr. R. W. Jones and seconded by Dr. Hewitt that, in addition to the reports of Sir Henry Roscoe and Mr. R. A. Tatton upon the question of artificial filtration being forwarded to the Local Government Board, a deputation be appointed to wait upon the Board with the view of showing the objections to a hard and fast rule being laid down with regard to land filtration. Alderman Joseph Thompson, Chairman of the Rivers Committee of the Manchester Corporation, said that Manchester was in a difficult position. It was the duty of the Committee to obtain as good an effluent as possible from the various Local Authorities, but not to enforce impossibilities. The Corporation of Manchester, though doing their utmost to meet the requirements of the Committee, were overpowered by facts which they could not get rid of. It was not possible to meet the difficulties of the sewage problem by land filtration; while as regarded artificial filtration, the two tanks constructed under the supervision of Sir Henry Roscoe were steadily diminishing in capacity as time went on. Under these circumstances it would be so terribly expensive to carry out a scheme on these lines that no one with any regard for the ratepayers could contemplate it, and he could not help thinking that the time was coming when the whole subject would have to be reviewed. So far as they could see at present it was simply impossible for the Corporation to keep up a continuous effluent good enough to meet the full requirements of the Committee. The motion was only adopted after a considerable amount of discussion, several members urging that it would be a mistake for the Committee to depart from the policy they had pursued in the past of refraining from recommending any particular system.

SEWAGE SCHEME, SALFORD.—At the monthly meeting of the Salford Town Council on the 7th inst. a report was submitted from the River Conservancy Committee dealing with the question of sewage disposal. It pointed out that an application had been made to the Local Government Board for sanction to borrow 50,000*l.* for the purpose of carrying out the Borough Engineer's scheme, and that the sanction had been refused. The reason given was that there was not an adequate area of land over which the effluent should be passed after the sewage had been treated chemically, it being stated that at least 100 acres should be provided for the purpose. To this and other objections, the Town Clerk replied that the Corporation brought the matter forward to satisfy the requirements of the Mersey and Irwell Joint Committee, which was charged with the duty of compelling the observance of the Rivers Pollution Prevention Act, 1876, and the Mersey and Irwell Joint Committee Act, 1892, and had obtained an order of the county court requiring the Corporation to cease polluting the river Irwell and the Ship Canal. The Corporation had for years past conducted practical experiments with almost every known system of sewage treatment, and acting on the experience thus gained, had adopted the scheme as the best artificial way of treating sewage under the existing conditions. The Borough Engineer had reported that the additional land which the Board proposed should be acquired, the preparation and the construction of the necessary culvert from the sewage works to the land, would cost 87,000*l.* in addition to the expenditure of 50,000*l.* already proposed, and that the extra cost of maintenance would amount to nearly 7,000*l.* annually. The Committee considered the provision already made ample for the object in view, and could not see their way to recommend the Council to undertake the large additional expenditure, which they believed to be totally unnecessary, and they respectfully requested the Board to reconsider the matter. The Local Government Board, however, replied that they must adhere to their requirements. The Committee recommended that the Council should borrow 50,000*l.* on the credit of the land, works, or other property of the Corporation used for the purposes of the disposal of sewage, and direct the requisite steps to be taken with that object; that the scheme of the Borough Engineer already adopted by the Council be proceeded with, and that the original application to the Local Government Board be withdrawn. On the suggestion of Alderman Walmsley it was agreed to postpone the discussion of the matter.

FOREIGN.

FRANCE.—The Municipal Council of Paris has registered a formal opposition to the demolition of the church of St. Pierre at Montmartre. At their last sitting they invited the Prefect of the Seine to present, as soon as possible, a statement of the work necessary for the thorough repair of the church, and to request from Parliament the portion which the State should by rights contribute to the repair of a building classed among "Monuments Historiques."——At the Hôtel des Invalides the new historical museum of the Army, created under the auspices of the Government, and with the co-operation of M. Detaille, has been inaugurated.——The Place Victor Hugo is at present being laid out in view of the installation of the monument which M. Barrias has just completed, and which is to be erected in place of the fountain now in the centre of the square.——Some large canal works are to be undertaken to assist in carrying the sewage of Paris into the plain of Méry-St.-Oise and to Vriel, for the purpose of agricultural use, as already done at Gennevilliers and Achères.——The Institute of France has nominated the three curators of the domain of Chantilly for three years. They are M. Mezières, for the Académie Française; M. Gruyer, for the Académie des Beaux-Arts; and M. Léopold Delisle, for the three other departments of the Institute.——The department of Haute Vienne will shortly open a competition for a new Prefecture building for Limoges.——There are to be monuments erected to two Provençal poets; one at Saint Rémi, to Antonius Arena, of which M. Demaille is the sculptor; the other at Château-neuf-des-Papes, to Anseline Mathieu, one of the founders of the literary society of the "Félibres." This is to be a fountain with decorative figures, modelled by M. Amy.——The buildings for the International Exhibition at Guatemala have been curried out by a Parisian architect, M. Bezault.——The thirty-fourth exhibition of the "Société des Amis des Arts" of Nancy will open on October 17, and remain open till November 28.——At Algiers the construction of an inner basin to the port of Agha is to be taken in hand shortly, at an estimated cost of 5,690,000 francs.——The monument in commemoration of the

visit of the Russian Sovereigns to Paris is to be erected at the Ranelagh, at the angle of the Avenue Prudhon and the Chaussée de la Muette.——At its meeting of Wednesday, the 7th inst., the Municipal Council of Paris passed the vote for the metropolitan electric railway scheme with narrow gauge, the general intended features of which we have already described. It will include a circular line by the outer boulevards, and two cross lines, one from north to south and the other from east to west. The works will be commenced as soon as the vote has received the formal ratification of the proper authorities; but it will be impossible to carry it out in time for the 1900 exhibition.——The Chamber of Deputies has voted, by a very large majority, for an addition to the water supply of Paris from the sources of the Loing and the Lunain.——A competition has been opened at Verviers for a monument in honour of Vieuxtemps, the great violinist. —— An iron bridge is shortly to be built over the Rhone at Lyons, between the Place Grôlier and the Rue de la Vitriolerie. The cost is estimated at about 2,200,000 francs.——The death is announced, at the age of forty-nine, of the painter Dantan, who, with his wife, was killed in a carriage accident at Villerville. Joseph Edouard Dantan was the son of Dantan the sculptor, and entered the atelier of Pils, at the Ecole des Beaux-Arts, in 1867. He first took up historic and religious painting, but soon abandoned this class of work to devote himself to *genre*, in which he acquired a great reputation both for interiors and "still life" subjects. Among his best works may be named "Le Coin d'Atelier," exhibited in 1880, "Le Repos du Modèle" (1881), "La Fête-Dieu" (1882), "L'Atelier du Moulage" (1884), "L'Entre-Acte à la Comédie Française" (1886), "Le Temple de l'Amour à Trianon" (1890), &c. In the Salon of this year he exhibited a portrait of Paul Aubé the sculptor, an "Interieur d'Atelier," and two pastels. He had received medals in the Salons of 1874, 1880, and 1889, as well as the decoration of the Legion of Honour in the last-named year.

GERMANY.—The first premium for the design for a monument to the Emperor William, which is to be erected at Aachen, has been awarded to Professor Maison, of Munich, and similar premiums of equal value (150*l.* each), have been given to Professor Schaper, of Berlin, and Herr Buscher, of Düsseldorf. The subject was an equestrian statue, and there was a committee of assessors, who are partly laymen, and partly artists.——The laws of Germany, which have been lately codified, and will come into operation in their new form on January 1, 1900, will influence the rights of building owners and builders to a considerable extent, and the legal aspect of the various alterations due to the codification is the subject of an interesting article in our contemporary, the *Deutsche Bauzeitung*.——The annual conference of the special delegates of the Amalgamated Societies of German Architects and Civil Engineers is now to take place at Rothenburg on September 10, and the subjects under discussion will be particularly interesting. One of the most important items on the agenda paper refers to the formation of a special journal, which is to echo the views of the amalgamated societies. The old journal of the Hanoverian and Saxon societies is to be re-adapted for this purpose.—— The Potsdam Bridge in Berlin, which is being rebuilt, is to be of considerable architectural pretensions, and a special committee has been elected by the Municipality to consider the best method of decoration, more particularly in respect of the sculpture. The City Architect, Baurath Ludwig Hoffman, will be the architect adviser to the committee.——In connection with the paper on the Berlin Royal Technical College, reported in a former issue, it is interesting to observe that there has again been an increase in the number of its students, who now number 2,693. Of these 112 are Russians, and there are three Englishmen.——A competition, limited to architects practising in the Grand Duchy of Baden, has just been opened for the reconstruction of the façades of the old Town Hall at Carlsruhe.——The German Institution of Civil Engineers has celebrated the entry into its new home with considerable ceremony. The building, which is in Charlotte-street, is situated on a site which cost about 15,000*l.*, whilst the building itself cost 12,000*l.* Messrs. Reimer & Koerte were the architects.——A large concert-room, with seating accommodation for 2,000, is to be erected at Goerlitz. The Municipality has given the site, and Count Hochberg will find the necessary funds for the building.——Professor Ende has been re-elected President of the Royal Prussian Academy.

SWITZERLAND. — The new Municipal Theatre, which has long been contemplated for Berne, is now to be taken in hand, and a competition has been opened for the design, limited to Swiss architects. There will be several assessors, among them Professor Bluntschi, of Zurich; M. Gos, the architect of the Geneva Municipal Theatre, and the engineering chief of the Munich Opera House.

ANNUAL DINNER.—The staff of Messrs. G. H. & A. Bywaters & Sons (builders, London) held their annual excursion on Saturday, the 10th inst., to Portsmouth, where they dined together. By special permission, the party were conducted round the Dockyard, and a trip to the Isle of Wight completed the programme.

MISCELLANEOUS.

PROFESSIONAL AND BUSINESS ANNOUNCEMENTS.—Mr. Jas. Wright, architect and surveyor, of 23, St. James's-street, Derby, has taken into partnership Mr. T. H. Tomlinson, and the business will be carried on in future under the style of "Wright & Tomlinson."——In consequence of Mr. R. G. Pinder's severe illness he has been obliged to retire from the partnership of Pinder & Fogerty, architects, Bournemouth, entered into on January 1 of this year. The business will in future be carried on by Mr. J. F. Fogerty at the same address—2, St. Peter's-terrace, Bournemouth.——Mr. T. S. Pulford, paint and colour manufacturer, has removed from 77, Cannon-street, to 14, Upper Thames-street, London, E.C.

PALMER'S PATENT TRAVELLING CRADLE.—This is a swinging cradle for men working on the fronts of buildings, the special feature of which is that it is slung from a wire rope stretched across the top of the building, and can readily be hauled backwards and forwards along this rope by the men in the cradle working the pullies; it is therefore unnecessary to make the cradle of any great weight or extent, as by the combination of the side pullies and the vertical tackle it can be moved all over the surface of the front by the men working in it. Two or three different ways of securing the wire rope are suggested; this part of the scheme, however, would not in most cases present any practical difficulty. This apparatus was successfully used in fixing and lighting in a very short time about 700 lamps in an illumination design on the eve of Jubilee day, when the contractors had failed to carry out the work and ladders were not permissible.

BECKETT'S STEEL FIRE-ESCAPE LADDER.—This is a ladder of light steel links and rungs, with a flat bar attached to one end by chains and pierced for rivets or screws for securing it inside the room. It will then fold into a comparatively small space, and can be thrown over from the window at a moment's notice. We do not accept the patentee's statement that "a child can throw it over"—he would be a pretty strong child; but any grown-up person can, and it requires no adjustment of any kind, when once attached to wall or floor below the window. As a combination of lightness and strength with incombustible character it is a very successful thing, provided that the sill of the window from which it is hung has sufficient projection to keep it well clear of the wall; unless this is the case its use for descent would be difficult and dangerous, a point which the patentees seem rather to have overlooked. Subject to this provision it can be recommended to notice.

THE SANITARY INSTITUTE.—At an examination in practical sanitary science, held at Bristol on July 2 and 3, five candidates presented themselves, to whom three certificates were granted, viz., H. J. Farmer, Bristol; E. J. Hale, Hornsey, N.; W. J. Masters, Birmingham. At an examination for Inspector of Nuisances, also held at Bristol on July 2 and 3, twenty-four candidates presented themselves. The following twelve candidates were certified as regards their sanitary knowledge competent to discharge the duties of Inspector of Nuisances:—P. N. Biggs, Bristol; J. Crocker, Blandford, Dorset; F. J. Downs, Bristol; H. C. Gould, Topsham, Exeter; F. J. Hurley, Aberkenfig, R.S.O., Glamorgan; C. F. Harris, Bristol; F. Kirley, Horfield, Bristol; H. B. Mapleton, Wonwell, Highweek, S. Devon; G. A. Millard, Chipping Sodbury; F. Padfield, Abertillery; C. W. Pritchard, Sheffield; J. Williams, Tonyrefail, near Porth.

STRAND AND OXFORD-STREET IMPROVEMENTS.—On the 12th inst. a Select Committee of the House of Lords, of which Lord Wantage is chairman, had under consideration the London County Council (Improvements) Bill. Mr. Freeman, Q.C., stated that the Bill was to empower the carrying out of three distinct improvements in various parts of London. The first, which was unopposed, was the construction of a suitable approach to the north side of Tower Bridge, similar to that which had been sanctioned, and was now being constructed, on the south side of the bridge. The next was the widening of Tottenham-court-road at the Oxford-street end by sweeping away the block of houses forming the east side of Bozier's-court, the effect of which would be that, after the carrying out of the work, the western side of Bozier's-court would become the western side of Tottenham-court-road. This improvement, counsel explained, was designed to relieve the constant block in the traffic that occurred at this locality. The chief opposition to this part of the scheme came from the Oxford Music-hall authorities, who objected to the hall being included in the area over which the betterment charge—for the betterment principle was incorporated in the Bill—was proposed to be spread. The remaining improvement was the widening of the Strand by the removal of the block of buildings between the two churches of St. Mary-le-Strand and St. Clement Danes, forming the south side of Holywell-street. Evidence was then taken for and against the proposals, the opposition chiefly coming from the Oxford Music-hall. Eventually the Committee found the preamble proved, and directed that the Oxford Music-hall must be included in the betterment area.

"THE MUNICIPAL YEAR-BOOK FOR 1897."—This work, by Mr. R. Donald, Editor of *London*, consists of an account of the constructive work carried out by municipalities, rather than the purely administrative. A chapter is devoted to Municipal Government in London, the work of the central metropolitan authorities is described, and a list of the local authorities given. An account follows of the English municipal code as an introduction to a description of the government of English towns, which are divided into three categories—great towns, county boroughs, and other incorporated towns. The short general sketches under the heading of the towns, which are admirable little summaries of the work of the different towns, are intended to bring out the main features of the municipal work in each case. Following on the English and Welsh cities and towns is a note on Municipal Government in Scotland and notices of the chief Scottish municipalities; and the same system has been adopted in the case of Ireland. Information as to the water supply, gas, electric lighting, and tramways of towns follows. The work is a model of conciseness, and will prove very useful as a book of reference.

MURRAY'S "CYCLISTS' ROAD-BOOK."—This is a small book that can be carried in the pocket, bound in the familiar red of "Murray's Guide-Books," and intended as a companion for a cycling tour from London through Guildford, Chichester and Portsmouth to the New Forest, and back by way of Romsey, Winchester and Dorking; giving information as to the things of interest in the various localities on the route, so that the cyclist may be encouraged to combine profit with exercise. Probably, if the guide-book for this route finds a good sale, others will be issued for other routes.

THE DICTIONARY OF ARCHITECTURE.—A complete copy of this work, bound in eleven volumes, was sold on Monday last at Sotheby's for 9*l.* 5s.

BUILDING BY-LAWS, HALIFAX.—At the meeting of the Halifax Rural District Council recently the question of "wooden spouts *versus* iron spouts" was discussed. The Council is proposing to adopt new by-laws, under which they will govern the erection of buildings in their district, and a short time ago a deputation waited upon the Local Government Board to discuss the framing of these by-laws. Eventually they became practically agreed on every point but one, and that was as to the sort of spouting to be put on buildings. The Council were in favour of wooden spouts, but the Local Government Board insisted that spouts should be made of iron. At the meeting above referred to Mr. G. J. Armytage (Clifton) proposed that a letter be written to the Local Government Board, pointing out that the use of wooden spouts was the general custom in the district, and that the Council thought them better than iron ones. Mr. Whittaker (Norland) said the wooden spouts would last longer than iron ones, which soon began to rust away. If an iron one got broken, they had to put an entirely new length in; they could not repair it. The difference of the cost of the two was very little. The chairman (Mr. Carter, Norwood Green) said all this was pointed out to the Local Government Board, but without avail. He did not think they would give way, and therefore proposed that the by-laws be adopted. Eventually, three voted for the adoption of the by-laws, and three against. The chairman gave his casting vote in favour of the adoption.

PROPOSED SUBWAY FROM GREENWICH TO MILLWALL.—The Bill promoted by the London County Council for powers to construct a subway under the river Thames from Greenwich to Millwall came up on the 13th inst. as an unopposed Bill before Lord Morley's Committee of the House of Lords. The preamble having been formally proved, the Committee passed the Bill as already sanctioned by the House of Commons. The subway will be constructed for foot-passengers only, and will commence near Brewhouse-lane, Greenwich, and will terminate near the western bountry of the Island Gardens, Poplar.

THE CITY COMMISSION OF SEWERS.—On the 13th inst., at the Guildhall the Commissioners of Sewers held their usual fortnightly meeting. A report was submitted by the Streets Committee proposing that the large freehold of Hornchurch Marshes, near Barking, with the Romford Canal, should be purchased for the purpose of dealing with the street refuse of the City on the system adopted by Glasgow.

MEMORIAL WINDOW, DERBY.—On the 10th inst., a stained glass window, erected in St. Andrew's Church, Derby, as a memorial of the late Rev. Robert Hey, for sixteen years vicar of the parish, was unveiled and dedicated. The window consists of two central lights, which are 25 ft. long, and 3 ft. 3 in. wide. The four side-lights are 20 ft. 6 in. long, and 2 ft. 1 in. wide. The window was designed and carried out by Messrs. F. Holt & Co., Warwick, the engraving on the brass plate being executed by Mr. A. W. Lowe, of Derby.

CAPITAL AND LABOUR.

PRESTON BRICKLAYERS' STRIKE.—The bricklayers of Preston, who came out on strike several weeks ago, have returned to work, a settlement of the differences between the employers and the men having been arrived at. One point in dispute was that the men should be conceded an advance of 1d. per hour, and on this point an amicable arrangement was arrived at some time ago, but there still remained a serious difficulty with reference to the

COMPETITION, CONTRACTS AND PUBLIC APPOINTMENTS.

COMPETITION.

Nature of Work.	By whom Advertised.	Premiums.	Designs to be delivered.
*Designs for Baths and Washhouses	Battersea Vestry	100*l.* 50*l.* and 25*l.*	Sept. 22

CONTRACTS.

Nature of Work or Materials.	By whom Required.	Forms of Tender, &c. Supplied by	Tenders to be delivered.
*Wood Pavement	St. George (Hanover Square) Vestry	The Surv. 1, Pimlico-road, S.W.	July 19
Pier Works	Morecambe Pier and Pavilion Co. Ltd.	Magnall & Littlewoods, Archt. 42, Spring gardens Manchester	do.
*Removing Wall and Building Flight of Steps	Commrs. of Sewers	Guildhall, E.C.	July 20
Electric Lighting Station, Brayford Side	Lincoln Corporation	City Surv. Lincoln	do.
Paving Works, Port-street	Annan (N.B.) Burgh Commrs.	M. Little, Town Clerk, Annan	do
Cottage, Morriston Station, near Swansea	G. W. R. Co.	G. K. Mills, Secretary, Paddington Station, W.	do.
Hotel, Tylorstown, Wales	.....	T. R. Phillips, Archt. Pontypridd	do.
House, Flint Hill, Newcastle-upon-Tyne	.....	J. H. Moyle, Archt. Hobson Colliery, Newcastle	do.
*Road Making and Paving	Willesden D.C.	O.C.Robson, Public Offices, Dyne-road, Kilburn	do.
Granite, &c. Road Metal	Rochester Corp.	W. Banks, C.E. City Surv. Rochester	July 21
Street Works, Marine-avenue	Southend Corp.	H. Harlock, Boro' Surv. Clarence-road	do.
Additions to Schools, Barcroft-street	Cleethorpe School Bd.	Croft & Bentley, Archt. Osborne-st. Gt. Grimsby	do.
Additions to Schools, Cotton, Suffolk	Rev. M. Turner	J. A. Clarke, Archt. Walsham-le-Willows	do.
Workshops, &c. St. Andrew's Dock, Hull	Humber Shipwright Co. Ltd.	Freeman & Co. Archt. Carr-lane, Hull	do.
Six Cottages, Usworth	N. E. R. Co.	W. Bell, Archt. Central Station, Newcastle-upon-Tyne	do.
Schools and Library	Middlewich U.D.C.	R. T. Worth, C.E. Town Hall-chmbrs, Middlewich	do.
Offices, Sheds, &c. Trade-street	Cardiff Corporation	W. Harpur, C.E. Borough Engineer	do.
*Making-up and Paving Streets	Southend-on-Sea Corp.	Boro' Surv. Clarence-road, Southend	do.
*Thirteen Cottages and a Forge	Rt. Hon. the Lord Pirbright	W. I. Chambers, Savoy House, Strand, W.C.	do.
*Coroner's Court and Mortuary	Hammersmith Vestry	H. Mair, 57, Fulham Palace-road, S.W.	do.
Farmhouse, Sneckyeat Farm, near Hensingham, Cumberland	.....	J. G. Dees, Somerset House, Whitehaven	July 22
Alterations to Church, Crakehall, Durham	.....	The Vicar, Crakehall	do.
Gasworks Extensions	Darlington Corp.	F. S. Steavenson, Darlington	do.
*Extension, Electric Light Works	Kingston-on-Thames Corporation	Borough Surveyor	do.
*Alterations, Workhouse	St. George-in-the-East Vestry	G. A. Wilson, Vestry Hall, Cable-street, E.	July 23
*Wood Paving	Islington Vestry	J. P. Barber, Vestry Hall	do.
Residence	Swilland (Suffolk) Sch. Board	J. S. Corder, Archt. Winbourne House, Ipswich	do.
Police Stations, Mardy and Merthyr Vale	Glamorgan C.C.	T. M. Franklen, County Offices, Cardiff	do.
Additions, &c. Grammar School, Thorne, Yorks	.....	H. B. Thorpe, Archt. Goole	do.
*Making-up and Laying Concrete Flags	Walthamstow U.D.C.	J.W. Holmes, Town Hall	do
Farm Buildings, Little Hinton, Wilts	H. Kinneir	Drew & Son, Archt. 22, Victoria-street, Swindon	July 24
Pipe Sewers, &c.	Birmingham Corp.	J Price, City Surv. Council House, Birmingham	do.
Chapel, Dinnington Colliery	.....	J. G. Crone, Archt. 50, Grainger-st. Newcastle-upon-Tyne	do.

CONTRACTS—*Continued.*

Nature of Work or Materials.	By whom Required.	Forms of Tender, &c. Supplied by	Tenders to be delivered.
Seventeen Houses, Penydarren Park, Merthyr Tydfil	.....	M. Warlow, Archt. Merthyr	July 25
Five Houses, East Ardsley, Yorks.	F. Blackburn	T. A Buttery, Archt. Queen-st. Morley, Yorks	July 26
Chapel, Camblesforth, Yorks	Trustees	T. S. Ullathorne, Archt. Selby	do.
Sixty Houses, Lodge-street, &c. Miles Platting	Manchester Corp.	City Surv. Town Hall, Manchester	do.
*Sewering, Levelling, Paving, &c.	Bromley U.D.C.	The Surv. Council Office	July 27
*Drains, &c.	County Borough of West Ham	Lewis Angell, Town Hall, Stratford, E.	do.
Additions to Schools, Bankffosfelen, Carmarthen	Llangendeirne Sch. Bd.	J. Thomas, Castle Hill Cottage, Carmarthen	do.
Pipe Sewers, London-road, &c.	Dover Corp.	H. E. Stilgoe, C.E. Town H.	do.
*Making-up and Paving Streets	County Borough of West Ham	Lewis Angell, Town Hall, Stratford, E.	do.
*Kerbing, Tarpaving, &c. Wildfell-road, Catford	Lewisham Bd. of Wks.	Surv. Board of Works' Office, Catford, S.E.	do.
do. do. Vineleigh-road, Penge	do.	do.	do.
do. do. Marnock road, Brockley	do.	do.	do.
do. do. Methusa-road, Catford	do.	do.	do.
*Brick and Concrete Sewer	do.	do.	do.
*Granite Spalls and Broken Granite	Hackney Vestry	J. Lovegrove, Vestry Hall	July 28
*Jarrah Wood Paving	Dewsbury Corp.	H. Dearden, Town Hall	do.
*Brewery Buildings	Chelsea Brewery Co. Ltd.	Co.'s Offices, 533, King's-road, Chelsea, S.W.	do.
*Painting and Decorating	Hackney Vestry	Gordon, Lowther, & Gunter, Finsbury House, Bloomfield-st. E.C.	do.
House, Llanwrtyd Wells, Brecon	R. Davies	H. Teather, Archt. Queen-st. Cardiff	do.
Warehouse, Pellon lane, Halifax	.....	C. F. L. Horsfall & Son, Archt. Lord-st.-chmbrs. Halifax	July 29
*Brick Sewer	St. George-in-the-East Vestry	G. A. Wilson, Vestry Hall, Cable-street, E.	do.
*Swimming Bath	Newington Vestry	E. T'Anson & Son, 7a, Laurence Pountney Hill	July 30
*Pipe Sewers, &c.	Bexley U.D.C.	A. Williams & Son, 18, Gt. George-st. S.W.	do.
Additions, &c. Bushell's Hospital, Goosnargh, Preston	.....	E. Garlick, Archt. 33, Winckley-sq. Preston	July 31
*Concrete and Brick Tanks	Sheffield United Gas Light Co.	T.W. Stevenson, Co.'s Offices Commercial-st. Sheffield	do.
Reservoir, Nant-Melyn	Aberdare U.D.C.	W. Fox, C E. 5, Victoria-st. Westminster, S.W.	Aug. 2
*Six Dwelling-houses	Admiralty	Watch Room, Beachy Head	Aug. 3
*Road Materials	Maidstone U.D.C.	F. Bunting, Fair Meadow, Maidstone	Aug. 4
*Erecting Laundry Works	Sanitary Laundry, Co. Hereford, Ltd.	A. Lovesey, 2, Offa-st. Hereford	Aug.
*Schools	Tottenham Sch. Bd.	A. N. Butler, 16, Finsbury-circus, E.C.	No date
Stores	Kirkby-in-Ashfield Co-op. Soc. Ltd.	Ball & Lamb, Archt. 5, Houndsgate, Nottingham	do.
School, Hunslet Carr	Leeds School Board	W. S. Braithwaite, Archt. Leeds	do.
Six Houses, Killamarsh	.....	W. H. Wagstaff, Archt. Chesterfield	do.
*Workhouse	Doncaster Union	J. H. Morton, 50, King-st. S. Shields	do.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Applications to be in.
*Building Inspector	Ilford U.D.C.	120*l.* per annum	July 20
*Surveyor's Assistant	Handsworth U.D.C.	120*l.* rising to 150*l.* per ann.	July 29

Those marked with an asterisk (*) are advertised in this Number. Competitions, p. iv. Contracts, pp. iv. vi. viii. & xxi. Public Appointments, pp. xviii. & xxi.

apprentices. There has existed in the trade for, perhaps, thirty years a kind of monopoly, by which the men insist that apprentices should be drawn from sons of bricklayers only, and that they should not be bound. The masters sought to have this monopoly terminated and the apprentices bound. A committee of three employers was appointed to meet in conference with a similar number from the ranks of the workmen, and they have now effected a settlement by which the strike has been ended, and the men have returned to work.—*Preston Herald.*

IPSWICH BUILDING TRADE DISPUTE.—According to the terms of the settlement, the majority of the men out on strike in the Ipswich building trade have returned to work. Several of the masters are short-handed on account of so many men having left the town, but the vacancies have to some extent been filled by strangers who arrived shortly after the commencement of the strike, and the majority of whom were engaged on the understanding that they should have permanent employment.

STRIKE OF PLASTERERS, DEWSBURY.—A number of plasterers in Dewsbury, Batley, Heckmondwike, Cleckheaton, and Morley, have come out on strike. On May 15 a meeting of plasterers was held at the Queen Hotel, Heckmondwike, and a resolution was passed demanding an advance of ¼d. per hour, to take effect from the first Saturday in July. There is another grievance, however, concerning extra pay when working from home. In case the men are more than 50 miles from home, they contend they should be paid 3s. per week and lodgings, and 2s. for Sundays, travelling expenses to be arranged. The masters object to this, which, it is said, is the real cause of the strike. The masters are considering the question of forming an association. Some of the masters, having contracts on hand, are paying the advance asked for.

PLUMBERS' STRIKE, FLEETWOOD, LANCASHIRE.—A number of members of the Plumbers' Society, Fleetwood and district, have come out on strike. The men, so we are informed, have on various occasions approached the masters with a view to having a general meeting, at which several matters of interest might be discussed. No such meeting could, however, be got together. On the 12th inst. the society by-laws were submitted to the employers to be signed, but all, with one exception, it is said, refused to do so, although one gentleman gave his word of honour to work by them. An application was also made for an increase of wages, and we understand there was a general feeling in favour of granting an increase of ½d. The crux of the situation appears to be the by-laws. If the masters would sign the by-laws there is reason to believe that the men would accept the proffered ½d. increase.—*Preston Herald.*

THE STAFFORDSHIRE BUILDING TRADES.—The building trades in the Potteries keep very busy, particularly on cottage property. Bricklayers report that all operatives are fully employed. Carpenters and joiners throughout the district are fully employed, and in many instances overtime is resorted to. Plumbers and painters are very busy. Bricklayers' labourers are well employed. At Leek all branches in the building trade are very busy, and the fire at Cheddleton Asylum has given further impetus to the trade. At Crewe trade is good, there being no operatives out of work. At Stafford trade keeps very good, particularly with the stonemasons.—*Staffordshire Sentinel.*

LEGAL.

IMPORTANT POINT UNDER THE PRIVATE STREETS WORKS ACT, 1892. CASE IN THE COURT OF APPEAL.

THE case of Heston and Isleworth Urban District Council *v.* Grout came before the Court of Appeal, composed of Lords Justices Lindley, Lopes, and Rigby, on the 9th inst., it being the defendant's appeal from a decision of Mr. Justice North in the Chancery Division. It appeared that on October 30, 1891, the Heston and Isleworth Local Board, the predecessors of the plaintiffs, served notices under Section 150 of the Public Health Act, 1875, on the frontagers of Prince Regent-road, Hounslow, to sewer and make up the road, in accordance with deposited plans and sections, within three months. The frontagers not having done the work within the prescribed time, the Local Authority became entitled to do the work themselves, and charge the frontagers with the expenses in proportion to their frontage, and for this purpose they desired to do the work by means of a loan, and applied to the Local Government Board for authority to raise a loan; the Local Government Board, however, refused to sanction the loan, because of the defective state of some sewerage works in the district. Applications were made from time to time to the Local Government Board, but it was not until November 12, 1894, that the authority, who were then the District Council, obtained the necessary sanction. They then issued tenders for the work, and on January 30, 1895, entered into a contract under which the work was completed in October, 1895. A sum of 157*l.* 14s. 10d. was apportioned as the share of the defendant in respect of frontage to property in the road owned by him. In the meantime—viz, on June 12, 1894—the Local Authority had passed a resolution adopting the Private Streets Works Act, 1892. The defendant refused to pay on the ground that the effect of the adoption of the Private Streets Works Act, 1892, was to render abortive the notice given by the Authority to sewer and make up the road. The plaintiffs then took out a summons for a declaration that the apportioned sum was a charge on the defendant's premises, and to have the charge realised. The Private Streets Works Act contains provisions as to the making of the streets, and gives a power to apportion expenses by less rigid rules than those of the Act of 1875, and it also gives the frontagers different rights of contesting their liability from those previously in force. Section 24 provides that the powers given by the Act are in addition to other powers; and Section 25 provides that Sections 150, 151, and 152 of the Public Health Act

1875 (the sections under which the Local Authority were acting), shall not apply to any district in which the Act of 1892 is in force. It was contended on the part of the plaintiffs that Section 38 of the Interpretation Act, 1889, kept alive the right of the District Authority to proceed under their notice, notwithstanding their adoption of the Act of 1892. The material part of this section is as follows :—(2). Where this Act or any Act passed after the commencement of this Act repeals any other enactment, then, unless the contrary intention appears, the repeal shall not (*b*) affect the previous operation of any enactment so repealed, or anything duly done or suffered under any enactment so repealed ; or (*c*) affect any right, privilege, obligation, or liability acquired, accrued, or incurred under any enactment so repealed."

Mr. Justice North adopted the view of the Act contended for by the plaintiffs, and gave judgment for them accordingly.

The defendant now appealed.

Their lordships at the conclusion of the arguments of counsel, held that Mr. Justice North had arrived at a right conclusion, and dismissed the appeal.

Mr. Macmorran, Q.C., and Mr. Ribton were counsel for the appellant ; and Mr. Warmington, Q.C., Mr. Swinfen Eady, Q.C., and Mr. Morten Smith for the respondents.

MEETINGS.

SATURDAY, JULY 17.

British Institute of Certified Carpenters.—Visit to Hampton Court Palace at 3 p.m.

MONDAY, JULY 19.

British Institute of Certified Carpenters.—Special Meeting at Carpenters' Hall at 6 p.m.

TUESDAY, JULY 20.

Society of Engineers.—Visit to Messrs. Easton, Anderson & Goolden's Works at Erith. Leave Westminster Pier at 1.30 p.m.

WEDNESDAY, JULY 21.

Builders' Foremen and Clerks of Works' Institution.—Half-yearly meeting of the members. 8 p.m.

THURSDAY, JULY 22.

Builders' Benevolent Institution.—Annual meeting of subscribers and donors. 3 p.m.

SATURDAY, JULY 24.

Architectural Association.—Summer visit to Oxford. Leave Paddington station at 9.50 a.m.

RECENT PATENTS :

ABSTRACTS OF SPECIFICATIONS.

17,178.—HINGES AND STAPLES FOR DOORS AND GATES : *J. W. Rudd.*—This invention consists in making the crook and backplate on which the door is hinged in one piece, which may be fixed on door-jamb. The bands or hinges are made to turn on the crooks. When applied as a staple, the eye and backplate are made in one piece, and may be fixed in such position on door-jamb to receive the hasp or slotted strap for fastening.

17,527.—ROOF AND WALL TILES : *J. Padbury.*—Tiles are provided with ribs and holes, so that they may be nailed as an ordinary slate. Ribs stand up above top of tile $1\frac{1}{8}$ in., and are $1\frac{1}{2}$ in. wide. They stand $3\frac{1}{4}$ in. apart to allow the nails above passing down clear. Nail-holes are placed $4\frac{1}{4}$ in. down from top of tile, and $\frac{5}{8}$ in. from each edge. Both outside corners at top of tile are cut off.

21,324.—WATER WASTE PREVENTERS FOR FLUSHING : *J. Walters.*—Inventor makes use of a double-chambered cistern, one chamber above the other. Upper (storage) chamber is fitted with buoy tap. A lead syphon pipe is fixed over bottom of this chamber, its inlet protected by a strainer-box. This syphon is connected with a union-pipe, which passes into lower chamber. To end of union-pipe is fixed a regulating apparatus which discharges the water into a tilting-bucket fixed in lower chamber. The regulating apparatus is a bell-mouthed metal tube provided with a disc, piston, &c. When the tilting-bucket is filled with the required quantity of water, it tilts over, rapidly discharges, and recovers its position on padded rests.

24,078.—"FIXING BRICKS" FOR BUILDING : *W. Nicholson.*—Invention consists in bricks provided with one or more holes, in any desired position, and about 3 in deep in one or both faces, or the end. These holes are to receive wood plugs or dowels, which can be driven in after brick has been built into wall, and to which grounds, skirtings, architraves and other architectural woodwork can be nailed.

9,113.—ATTACHMENT OF WOODWORK TO WALLS, &c. : *A. Thicke.*—In order to enable grounds, skirtings, wainscot, and other wood members to be readily affixed to walls, inventor provides metal plates, containing a wooden block. Such plates are nailed to wall, and the woodwork in turn is secured to block.

9,137.—COMBINED LATCH AND BOLT FOR DOORS, WINDOWS, &c. : *J. B. Seward.*—The bolt has an extended arm pivotted near to bottom. Part of this below the pivot is acted upon when door, &c., is quite closed by an ordinary spring latch, fixed in the jamb of door, &c. The door is opened by turning lever by ordinary door spindle.

10,438.—WINDOW SASHES AND FRAMES : *J. C. Kahle.*—Invention has for object to provide a window in which the sashes may be easily and quickly swung inwards for cleaning, &c. This is effected by the combination with a window sash of a vertical slide fitted to its side edge, a projecting screw upon the sash provided with a thumb-nut, and a lug upon the side arranged to take over the screw, and having a recess arranged by the thumb-nut. Various other similar combinations are described.

10,626.—FLUSHING APPARATUS : *M. Vliegen.* — Invention consists in an apparatus for the distribution of water from a reservoir by means of a syphon, and the provision of an air valve actuated in any suitable manner by hand to introduce air into the syphon when desired ; also in such reservoir the provision of a bell jar pipe, covering the syphon, and having its bottom portion formed into a piston working in a cylindrical part of the reservoir bottom, the whole being actuated by a suitable lever.

NEW APPLICATIONS FOR LETTERS PATENT.

JUNE 28.—15,374, D. Sullivan, Weightless Window Lifts.—15,405, A. Boult, Artificial Blocks, Sheets, Mouldings, &c

JUNE 29.—15,434, C. Plant, Flushing Cistern.—15,448, J. Adams, Window Fastener.—15,456, T. Thomas, Window Fasteners.—15,458, J. Thomas, Window Sash Fasteners.—15,460, A. Smith, Fasteners for Sashes.—15,462, J. Veitch, Sash Fasteners.—15,463, F. Dossogne, Automatic Door-Closing Apparatus.—15,486, W. Wise, Windows.

JUNE 30.—15,559, Major Mawson, Securing Window Sashes.—15,560, M. Mercier, Electrical Bell Pushes.—15,570, W. Jones and W. Edwards, Window Sash Fastener.—15,575, A. Wise, Carriage for Lifting and Transmitting Timber, &c.—15,582, A. Martyn and F. Goodsall, Composite Sheet Material for Roofing Lights, &c.—15,588, E. Fielder, Window Sash Fastener.—15,598, A. Brown, Sash Fastener. — 15,611, G. and J. Cooke, Stained Glass Windows.—15,628, S. Wathan, Window Sash Fasteners.—15,629, G. Cockings, Window Sash Fastener.—15,633, J. Martingale, Window Sash Fasteners. — 15,634, S. Seccombe, Window Sash Fastener.

JULY 1.—15,638, E. Fogg, Sash Fastener.—15,647, G. Pollard, Sash Fastener.—15,640, T. Rees, Sash Fastener and Tightener Combined. - 15,675, J. Hill, Window Sash Fastener.—15,676, A. Todd, Sash Fasteners.—15.678, R. Matthews, White Lead.—15,679, W. Fletcher, Sash Fasteners.—15,680, D. Hughes, Sash Fasteners.—15,691, G. Thomas, Sash Fasteners.—15,692, M. Hughes, Sash Fasteners.—15,684, H. Fidler, Apparatus for Suspending in a Sloping Position Blocks of Concrete, Stone, Masonry, Brickwork, &c.—15,686, W. Chitty, Window Sash Fasteners.—15,694, J. Aust, Sash Fastener.—15,701, W. Llewellyn, Sash Fasteners.—15,726.—F. James, Sash Fasteners.

JULY 2.—15,731, R. Waugh, Sash Fastener.—15,734, H. Griffiths, Window Sash Fasteners.—15,758, J. Shanks, Siphons for Flushing Purposes.—15,763, F. Graziani, Sash Fasteners.—15,765, H. Warner, Window Fasteners.—15,767, G. Rayner, Fastenings for Windows.—15,768, J. Burn, Securing Cupboard Doors.—15,783, A. Haenichen, Sash Holders.—15,814, S. Heller, Workmen's Time Checks.

JULY 3.—15,842, R. Miles, sen., Water-closets, &c.—15,874, J. and W. Rawlings, Automatic Flushing Apparatus.—15,887, H. Cooper, Sash Fasteners.—15,888, W. Jakubowski, Window Sash Fastener.—15,889, E. Jenkins, Fastening for Windows.—15,905, J. Hanna and T. Shillington, Stables and their Fittings.

PROVISIONAL SPECIFICATIONS ACCEPTED.

11,396, G. Bitten & H. Bowles, Sash Fasteners.—11,534 M. Fitschen, Window Fastening Device.—12,570, W. Maguire, Decorating Tiles, &c.—13,493, F. Thorpe, Water Waste Preventors for Flushing Closets.—13,508, A. Pardy, Sash Fasteners.—13,680, D. Rees, Sash Fastener.—14,011, W. Lee, Fastenings for Windows.—14,012, B. Donnell, Sash Fasteners.—14,073, G. Dungate, Fastening for Sashes.—14,179, W. Thomas, Fastenings for Windows.—14,246, G. Vesey, Flushing Apparatus.—14,295, A. Patrick, Portland or Similar Cement.—14,378, E. Box, Securing Pipes in Sockets.—14,419, R. Cotton & S. Gater, Sliding Window Sashes.—14,431, E. Herne, Sash Fasteners.—14,494, F. Dowey, Sash Fastener.—14,600, H. Richardson, Ventilators.—14,615, E. Giles, Water-pipes for Buildings.—14,617, W. Needle, Window Fastener.—14,619, E. Meredith, Window Fastener.—14,626, D. Morgan, Fastening for Windows.—14,632, S. Leech, Pressing Bricks, Tiles, &c..—14,705, J. Jones, & J. Llewellin, Sash Fastener.—14,746, E. Thomas, Window Sash Fastener.—14,752, R. Buckland, & A. Woodward, Fastenings for knobs for doors, handles, &c.

COMPLETE SPECIFICATIONS ACCEPTED.

Open to opposition for two months.

15,823, M. Albrecht and E. Nöbel, Water-closets.—16,888, J. Dobbie, Tools for Dressing Stone, Marble, &c.—16,889, J. Dobbie, Stone Dressing Tools.—16,892, T. Jones, Process for Hardening Stone.—18,295, J. Kleine, Fireproof Ceilings and Floors.—19,023, J. Duke, Inlet Ventilator.—19,392, F. and A. Woodward, Fastenings for Sliding Window Sashes.—19,451, J. Taylor, Ventilators.—19,654, T. and W. Thomasson, Waste-water Pipes of Domestic Sinks, Baths, &c.—19,806, S. Bastow, Windows.—25,706, F. Müller, Roofs, Ceilings, &c., and Building Blocks therefor.—8,261, J. Howden, Fireproof Floors.—10,258, J. Sisk, Bricks.—11,076, W. MacHarg, Windows.—13,026, W. Chrometzka, Fireproof Ceilings.—13,086, J. Marsh, Flushing Syphon Cisterns.

SOME RECENT SALES OF PROPERTY :

ESTATE EXCHANGE REPORT.

June 15.—By DURHAM, GOTTO, & SAMUEL (at Towcester).

Bradden, Northants.—A freehold residence and 98 a. 2 r. 24 p., f.	£3,150
"Brook Furlong Meadow" and two cottages, 14 a. 3 r. 28 p., f.	660
Slapton, Northants.—A freehold farm and 87 a. 0 r. 39 p.	1,400
Various enclosures and two cottages, 55 a. 0 r. 33 p., f.	2,065
A water and steam mill, house, and 3 a. 1 r. 23 p., f.	500
Abthorpe, Northants.—A farmhouse and 10 a. 2 r. 19 p., f.	620
Silverstone, Northants.—"Wild Wood," 10 a. 3 r. 6 p., f.	740

June 28.—By WYATT & SON (at Chichester).

Chidham, Sussex.—House, orchards and market gardens, 13 a. 1 r. 34 p., f.	1,225
"Hambrook farm," 92 a. 0 r. 6 p., f.	1,300
Five cottages and two enclosures, 2a. 3 r. 13 p., f.	320

By M. DEROME & SON (at Shap).

Shap, Westmoreland.—"Rigg Hall Farm," 11 a. 0 r. 36 p., f.	580
Enclosures of land, 26 a. 3 r. 23 p., f.	576
Morland, Westmoreland.—House and "Bean Hole Close," 1 a., f. and c.	102

By G. F. ATTREE (at Brighton).

Ditchling, Sussex.—Enclosures of land, 47 a. 0 r. 39 p., f. and c.	1,220
Various enclosures, 10 a. 1 r. 34 p., f. and c.	410

June 29.—By G. SIDDONS (at Thrapston).

Tichmarsh, Northants.—"The Cottage" b.-h., f.	700
Enclosures of land, 17 a. 1 r. 0 p., f.	800
Thrapston, Northants.—"The Hollies" and 1 a. 3 r. 25 p., f.	1,200
Midland-rd., two freehold tenements	480

By G. H. PETTY (at Lancaster).

Halton, Lancs.—"Halton Green Farm," 83 a. 0 r. 21 p., f.	2,890
A house and enclosure, 6 a. 3 r. 36 p., f.	1,060

By MORRIS, SON, & PEARD (at Langport).

Aller, Somerset.—Various enclosures of land, 118 a. 1 r. 16 p., f.	6,251
"Hellyers" and 8 a. 3 r. 31 p., f.	650
Curry Rivell, Somerset.—Enclosures of land, 25 a. 1 r. 1 p., f.	1,230
Drayton, Somerset.—Enclosures of land, 20 a. 1 r. 25 p., f.	298

By ALDER & CO.

Streatham.—137, Hopton-rd., f., e.r. 65*l.*	850

By C. W. DAVIES.

Islington.—61 and 63, Culford-rd., u.t. 21 yrs., g.r. 6*l.*, r. 64*l.*	370
202, New North-road, u.t. 29½ yrs., g.r. 7s. 6d., r. 34*l.*	240
Barnsbury.—54, Rhodes-st., u.t. 61 yrs., g.r. 7*l.*	205

By FLEURET, SONS, & ADAMS.

Barnsbury.—125, Offord-rd., f., r. 60*l.*	1,410

By ORGILL, MARKS, & ORGILL (at Masons' Hall Tavern).

Sutton.—High-st., "The Station Hotel," u.t. 66 yrs., r. 35*l.*, with goodwill	34,100

By DAVID ROBERTS (at Swansea).

Landore, Glamorgan.—The Millbrook Iron and Steel Works, 9½ a., f., with goodwill, machinery, plant, &c.	13,200

By HUMBERT, SON, & FLINT (at Watford).

Leavesden, Watford.—Six copyhold cottages	335
Three freehold cottages	180

By BIDWELL & SONS (at Market Harborough).

Weston-by-Welland, Northants.—A freehold farm, comprising 146 a. 1 r. 38 p., r. 270*l.*	4,000

By GEORGE BROWN (at Rugeley).

Colton, Staffs.—"The Newland's Farm," 170 a., f.	3,210
Five enclosures of land, 24 a. 2 r. 5 p., f.	890

June 30.—By A. DOWELL (at Edinburgh).

Drummelzier, Peebleshire.—"The Estate of Dawick," 3,561 a.	27,500
Airth, &c., Stirlingshire.—Six farms on the estate of Dunmore, 665 acres	15,760
Johnstone, Dumfriesshire.—The lands of Upper Minnygap, 742 a.	3,520

By J. WETHERELL (at Northallerton).

Romanby, Yorks.—"Broomfield House Farm," 158 a. 0 r. 9 p., c., r. 187*l.*	2,175

By BIDDELL & BLENCOWE (at Bury St. Edmunds).

Whepstead, &c., Suffolk.—"The Tuffields Hall Estate," 100 a. 2 r. 23 p., f.	970

By E. STOOKE (at Hereford).

Sollershope, Hereford.—"Hurstans Farm," 88 a. 2 r. 10 p., f.	1,350

Contractions used in these lists.—F.g.r. for freehold ground-rent ; l.g.r. for leasehold ground-rent ; i.g.r. for improved ground-rent ; g.r. for ground-rent ; r. for rent ; f. for freehold ; c. for copyhold ; l. for leasehold ; e.r. for estimated rental ; u.t. for unexpired term ; p.a. for per annum ; yrs. for years ; st. for street ; rd. for road ; sq. for square ; pl. for place ; ter. for terrace ; cres. for crescent ; yd. for yard, &c.

PRICES CURRENT OF MATERIALS.

TIMBER.		
Greenheart, B.G.	ton	8 0/0 0/0/0
Teak, E.I.	load	10/10/0 15/0/0
Sequoia, U.S.	ft.cu.	1/8 1/10
Ash, Canada	load	3/5/0 4/10/0
Birch, do.		3/15/0 5/10/0
Elm, do.		4/0/0 5/5/0
Fir, Dantsic, &c.		2/15/0 4/15/0
Oak, do.		2/10/0 3/10/0
Canada		5/5/0 6/5/0
Pine, Canada red		0/0/0 0/0/0
Do. Yellow		2/0/0 4/0/0
Lath, Dantsic, &c.	fath	4/10/0 5/10/0
St. Petersburg		5/0/0 8/10/0
Wainscot, Riga, &c., log		1/10/0 3 15/0
Odessa, crown		1/10/0 2/15/0
Deals, Finland and 1st std	100	8/0/0 8/10/0
Do. 4th & 3rd		8/0/0 8/10/0
Do. Riga		7/10/0 8/10/0
St. Petersburg, 1st yellow		10/0/0 12/10/0
Do. 2nd yellow		9/0/0 10/0/0
Do. white		8/10/0 10/10/0
Swedish		9/10/0 16/10/0
White Sea		10/10/0 17/0/0
Canada, Pine 1st		19/10/0 25/10/0
Do. do. 2nd		14/0/0 16/10/0
Do. do. 3rd, &c.		6/10/0 10/0/0
Do. Spruce, 1st		10/10/0 12/0/0
Do. do. 3rd and 2nd		8/0/0 9/5/0
New Brunswick		7/15/0 8/5/0
Battens, all kinds		5/0/0 10/0/0
Flooring boards, sq., 1 in. prep. 1st		0,8,6 0/15,6
Do. 2nd		0/7/0 0/12/0
Other qualities		0/5/3 0/6/9
Cedar, Cuba, ft.		/4½ /5
Honduras, &c.		/4 /5
Mahogany, Cuba		/5 /6½
St. Domingo, cargo av.		/4½ /5
Mexican, do. do.		/4 /5
Tobasco, do. do.		/4½ /7
Honduras, do.		/5 /6½
Box, Turkey, ton		4/0/0 15/0/0
Rose, Rio		7/0/0 14/0/0
Bahia		6/0/0 12/0/0
Satin, St. Deming.		0/0/7 0/2/0

TIMBER *(continued)*.		
Satin, Porto Rico		0/0/7 0/1/
Walnut, Italian		0/0/3 0/0/7
METALS.		
Iron—Pig, in Scotland	ton	2/3'11½ 0/0/0
Bar, Welsh, in London		5/15/0 5/17/6
Do. do. at works in Wales		5/10/0 5/12,6
Do. Staffordshire, in London		6/5/0 7/12/0
COPPER—British cake and ingot		51/10 0 52/0/0
Best selected		52/0/0 52/10/0
Sheets, strong		57/0/0 58/0/0
Chili bars		47/12.6 0/0/0
YELLOW MTL	lb.	4¾d. 5d.
LEAD—Pig, Spanish	ton	12/2/6 12'5/0
English com. brands		12'5/0 12'7/6
Sheet, English 6 lbs. per sq. ft. and upwards		13/10/0 0/0/0
Pipe		14'0/0 0/0/0
ZINC—English sheet	ton	20/10/0 0/0/0
Vieille Montagne		21/10/0 0/0/0
Spelter		16/15/0 16/17/6
TIN—Straits		62/10/0 0/0/0
Australian		63/10/0 0/0/0
English Ingots		65/15/0 66/10/0
Banca		61/0/0 0/0/0
Billiton		59/15/0 60/0/0
OILS.		
Linseed	ton	14/5/0 14 7,6
Cocoanut, Cochin		27/15/0 0/0/0
Do. Ceylon		24/0/0 0/0/0
Palm, Lagos		24/10/0 0/0/0
Rapeseed, English pale		27/10/0 27/15/0
Do. Brown		27/0/0 27/10/0
Cottonseed ref.		25/17/6 26/10/0
Oleine		28/10/0 29/10/0
Lubricating U.S.		0/6/3 0/7/6
Do. black		0/4/9 0/6/6
TAR—Stockholm	barrel	22/0 0/0/0
Archangel		0/12/6 0/0/0
Turpentine		20/2'6 20/5'0

TENDERS.

[Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than* 10 *a.m. on Thursdays*. N.B.—We cannot publish Tenders unless authenticated by the name and address of the sender : and we cannot publish announcements of Tenders accepted unless the amount of the Tender is given, nor any list in which the lowest Tender is under £100, unless in some exceptional cases and for special reasons.]

ASHFORD.—For the construction of a covered service reservoir, water tower, &c., for the Urban District Council, Ashford, Kent. Mr. Wm. Terrill, Surveyor and Waterworks Engineer. Quantities by the Surveyor :—

Wm. Coker	£4,454	18	0	Tuff & Miskin	£3,938 0 0
Pedrette & Co.	4,421	12	7	A. E. Nunn	3,612 0 0
Richard Avard	4,347	0	0	W. J. Logan, Maidstone (accepted)	3,349 0 0
T. T. Denne	3,999	0	0		

ASHFORD.—For the making up of a portion of Christchurch-road, Ashford, Kent, for the Urban District Council. Mr. William Terrill Surveyor and Waterworks Engineer. Quantities by the Surveyor :—

J. E. Hughes	£392 0 0	G. Joy	£225 15 8
W. J. Logan	249 0 0	Wm. Coker, Halling, Rochester*	220 0 0
G. F. Davis	232 0 0		

* Accepted.

BRIDLINGTON.—For the erection of six houses and shop, Quay-road, for Mr. G. V. Mainprize. Mr. S. Dyer, architect, Bridlington Quay :—

T. Wood	£2,873 5 0	William Barnes, Travis-street, Bridlington Quay*	£1,608 0 0
E. Wilson	2,014 1 6		
J. Rennard	1,950 0 0		
J. Sawdon	1,839 10 0		

* Accepted.

ENNISKILLEN.—Accepted for the erection of Town Hall, for the Commissioners. Messrs. A. Scott & Son, architects, Drogheda :—

James Harvey, Enniskillen £8,500

FARINGDON.—For the erection of a Post Office at Faringdon, Berks. Messrs. Wm. Drew & Sons, architects, Swindon. Quantities by the architects :—

Cadel Bros.	£1,189 0	Joseph Williams, Swindon*	£960 0
Flewelling & Huckson	1,042 0		
Thos. Colborne & Sons	985 17		

* Accepted.

LLANGOLLEN.—For the erection of the County school, for the Governors. Mr. H. Teather, architect, Andrew's-buildings, Queen-street, Cardiff. Quantities by the architect :—

J. T. Jones	£3,155 0 0	W. H. Thomas, Oswestry*	£2,923 12 2
Jabez Higgins	3,143 0 0	Jones & Evans	2,795 10 0
John Gethin	3,032 0 0	T. A. Jones	2,700 10 0
Henry Smith	3,020 0 0	Bradney & Lloyd, (withdrawn)	2,589 0 0
Wm. Rogers	2,945 11 0		
W. E. Samuel	2,930 0 0		

* Accepted.

LONDON.—For painting, &c., at the Infirmary, Fulham-road, for the Guardians of the Poor of St. George's, Hanover-square, W. Mr. C. Evans Vaughan, architect :—

J. E. Davis	£1,468	M. MacCarthy	£960
F. T. Chinchen	1,100	G. McArthur & Co.	875
E. Proctor	965	Vigor & Co.	835
J. Chessum & Sons	961	Lilly & Lilly	817

LONDON.—For the erection of shop and dwelling-house at Sale-street, Bethnal Green, E., for Mrs. Linney. Mr. J. Williams Dunford, architect, 109C, Queen Victoria-street, E.C. :—

Wire & Forrest	£563	Knight & Sons, Bethnal Green (accepted)	£548
Lawrence	£560		

LONDON.—Accepted for extensions at workhouse, Homerton, for the Hackney Union Guardians. Mr. W. A. Finch, architect, 76, Finsbury-pavement :—

J. Chessum & Sons, 15, Stear-street, Haggerston £1,220

LONDON.—For the erection of a billiard room at the "Eagle Hotel," Tottenham, for Mr. Joseph Harris. Messrs. Perry & Reed, architects, 9, John-street, Adelphi, W.C. :—

P. Hart	£1,072	H. Knight & Son, Tottenham (accepted)	£973
W. Hawley	985		

LONDON.—Accepted for building thirteen houses on the Steele Estate, Tottenham, for Mr. T. E. Baker :—

H. Knight & Son, Tottenham ..... £2,925.

No competition.

LONDON.—For alterations and redecoration of the Downs Chapel, Lower Clapton. Messrs. W. Bradbear & Co., architects and surveyors, Canonbury Station, N. :—

Higgs & Hill	£894	Colls & Son	£848
Bradford	873	Britton (accepted)	665

LONDON.—For the erection of two houses in Chatham-road, Wandsworth-common, for Messrs. Battershell Bros. Mr. John Job Wood, architect and surveyor, 47, Candahar-road, Battersea :—

Bruckland	£572 15	Coates	£555 10
Bilham	568 10		

[Surveyor's estimate, £567.]

LONDON.—For taking down and rebuilding No. 1, Bow-lane, Cheapside. Mr. C. Innes, architect, 27, Queen-street, City, E.C. :—

E. Lawrance & Sons	£1,795	Mansfield & Son	£1,654
Prestige & Co.	1,737	Dove Bros.	1,625
Colls & Sons	1,710	Falkner & Sons	1,573
Gaisam Bros.	1,700	Spencer & Co.	1,424

MANSFIELD.—For the erection of two houses, St. John-street, for Mr. Wharmby. Mr. Wm. Dodsley, architect, Mansfield :—

Fisher Bros.	£1,419	A. H. Sharley	£1,252
W. A. Vallance	1,393	J. Pogson (accepted)	1,180
W. Bains	1,387	J. Tate, Annesley Woodhouse (accepted)	1,179
C. G. Percival	1,375		
W. S. Cuddy	1,270		

NEWTOWN (Montgomery).—For the erection of "intermediate school" buildings, for the Governors. Mr. H. Teather, architect, Queen-street, Cardiff. Quantities by the architect :—

R. Morgan	£3,548	H. Smith	£2,934
E. H. Williams	3,260	Bradney & Lloyd	2,885
T. W. Swain	3,250	Rowland & Lloyd	2,865
E. Davies & Son	3,065	W. H. Thomas, Oswestry*	2,814

* Accepted.

NEW SWINDON (Wilts).—For additions to house and shop, 14, Fleet-street, for Mr. Farnham Budgett. Messrs. W. Drew & Sons, architects, 22, Victoria-street, Swindon. Quantities by the architects :—

Flewelling & Huckson	£440	Thos. Colborne & Sons, Swindon (accepted)	£373
Charles Williams	419		

PENRITH.—For the erection of a cement concrete wall, near Pooley Bridge, for the Rural District Council :—

			per lineal yd. s. d.	per cubic yd. s. d.
Ormerod & Son	£687 10 0	for 550 yds. or	25 0	37 6
W. Grisenthwaite	—	"	18 0	20 0
J. Rule	568 6 8	"	20 8	32 0
J. Jackson, Penrith*	330 0 0	"	12 0	20 0

* Accepted on lineal tender.

ST. ALBANS (Herts).—For the erection of villa residences, for Messrs. Orford Smith, Ltd. Mr. G. P. Smedley, architect, 110, St. Martin's-lane, Charing Cross, W.C. Quantities by Mr. W. Lockwood, 110, St. Martin's-lane, W.C. :—

E. Dunham	£7,950	Heineman & Brown	£7,315
H. Plummer	7,790	Miskin & Son*	7,300
Outhwaite & Son	7,325		

* Accepted.

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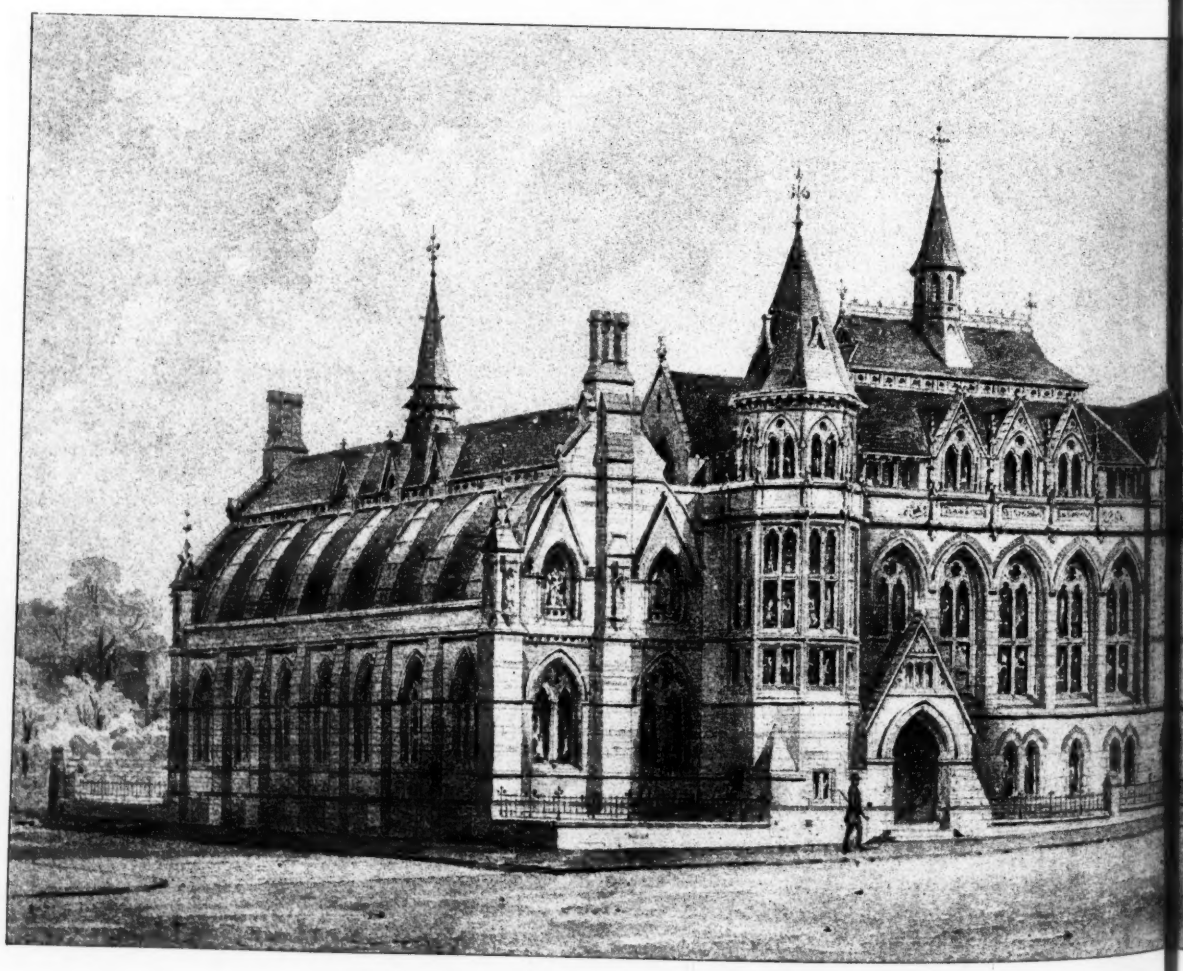

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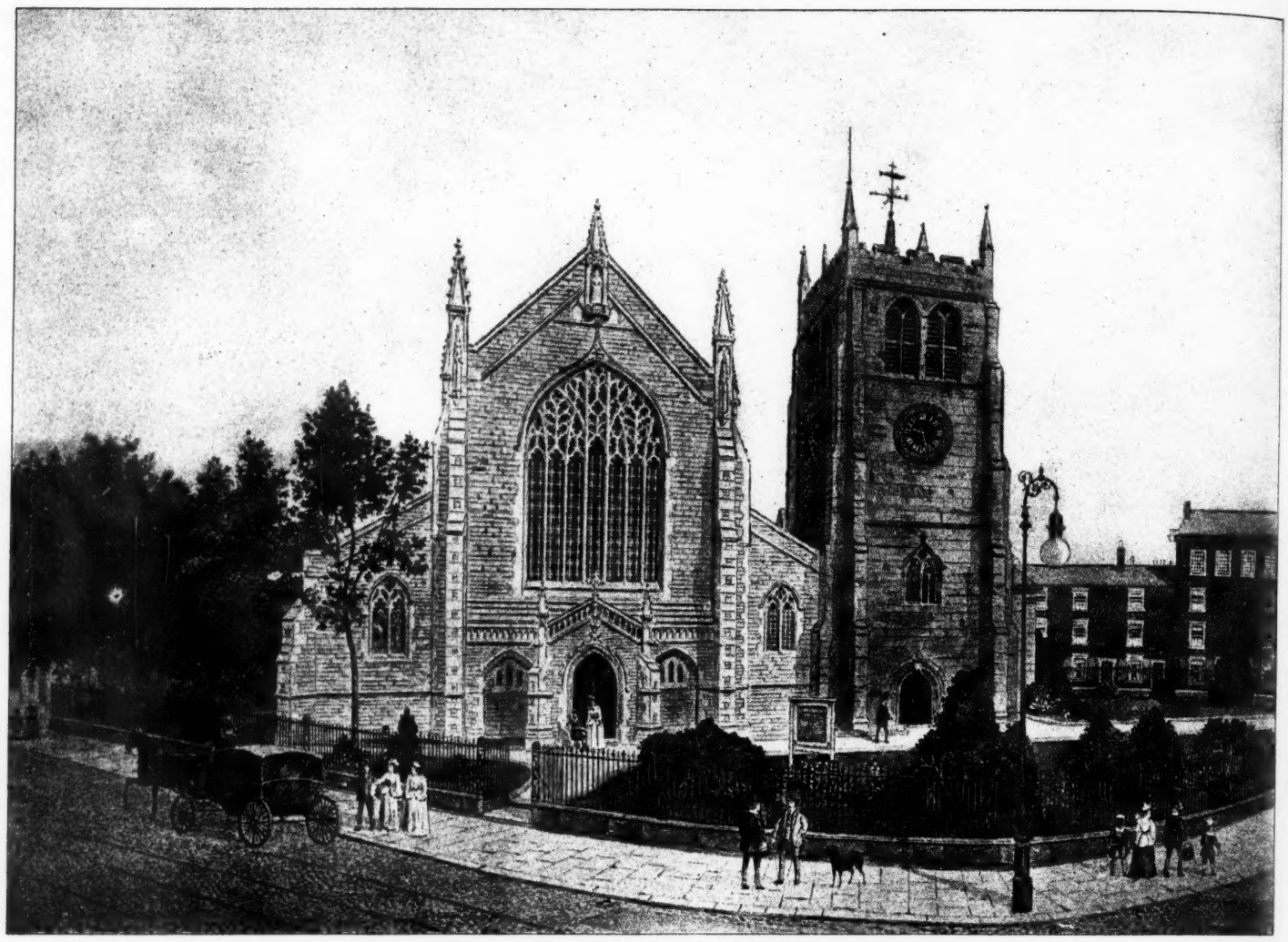

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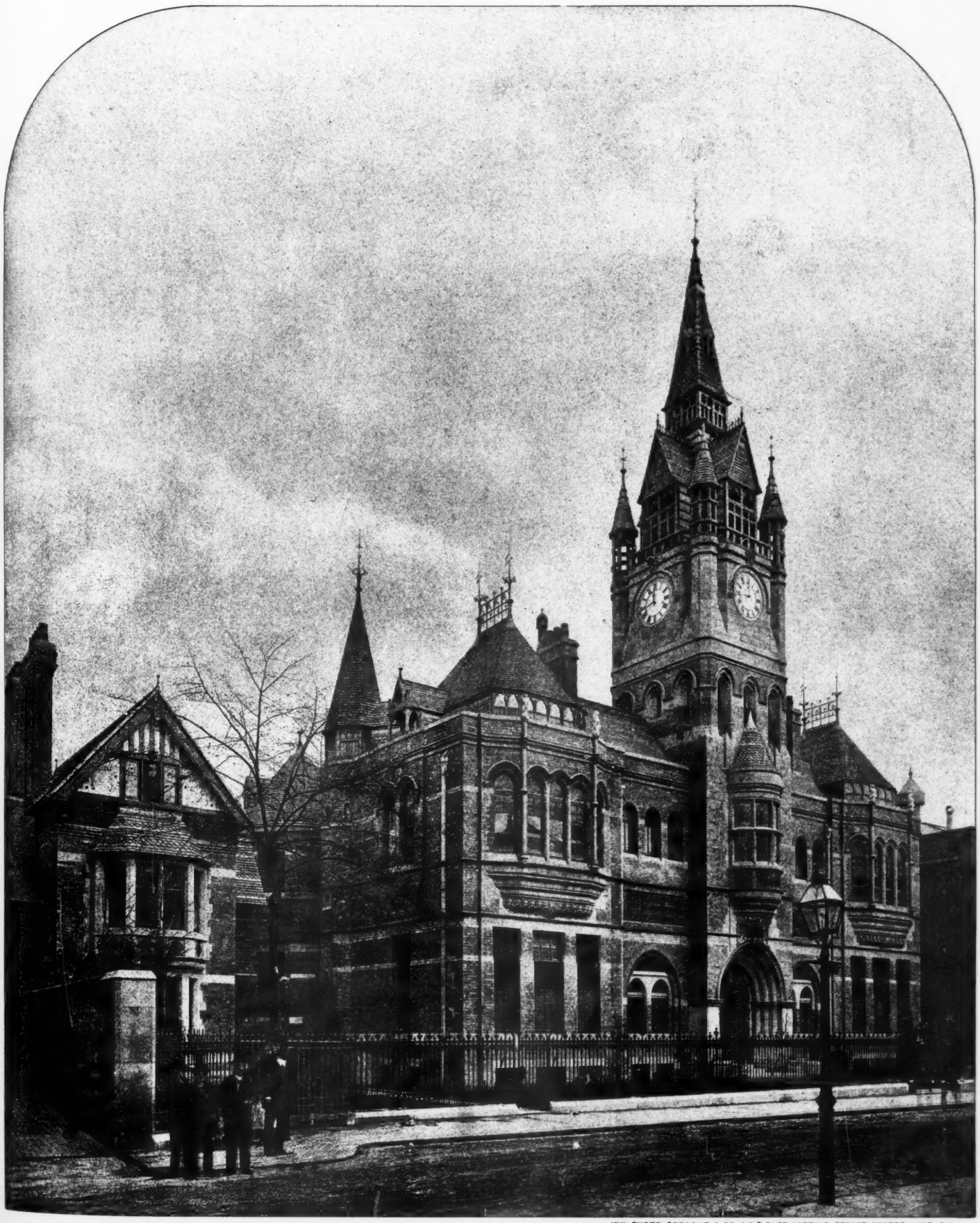

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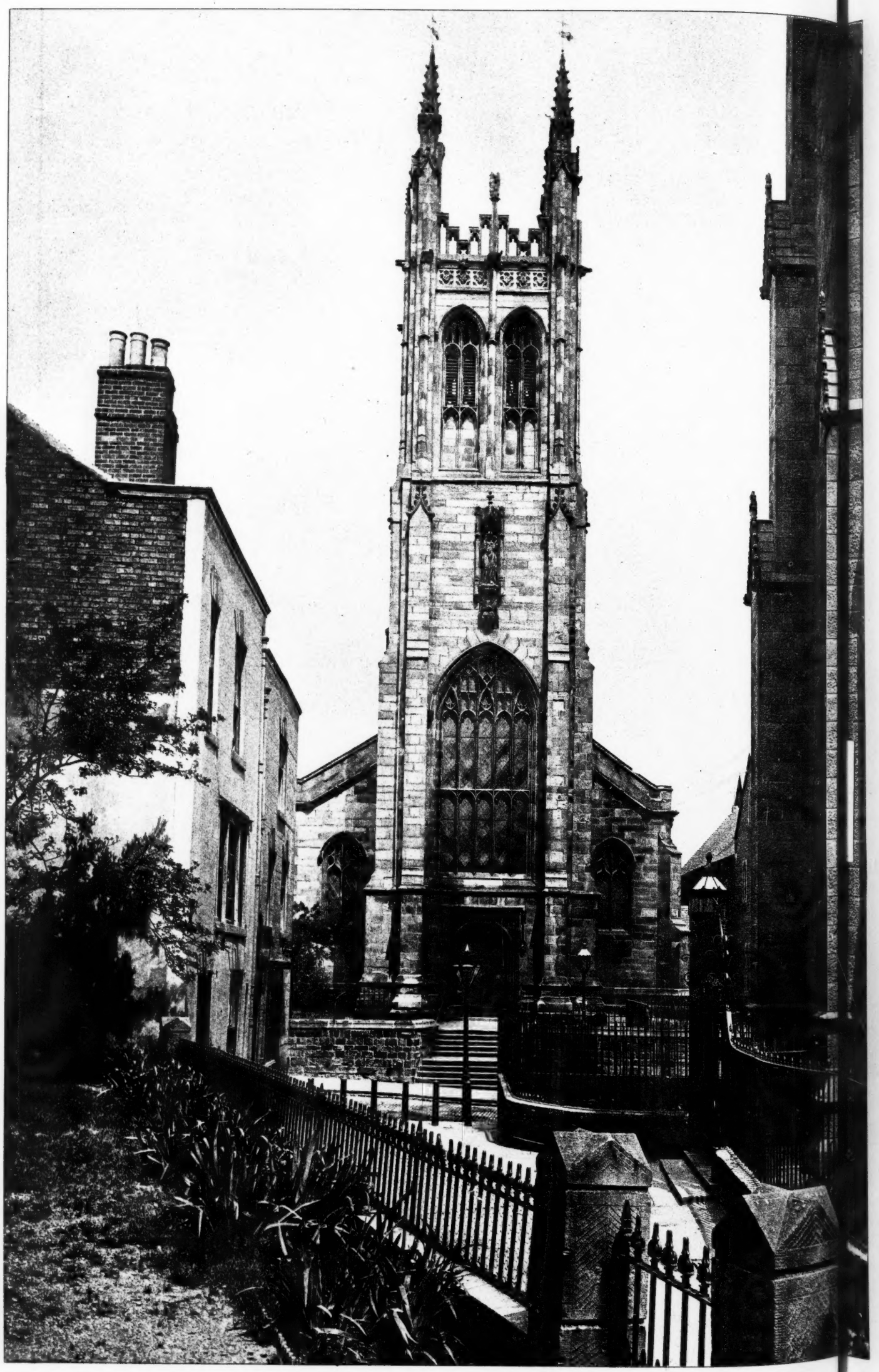

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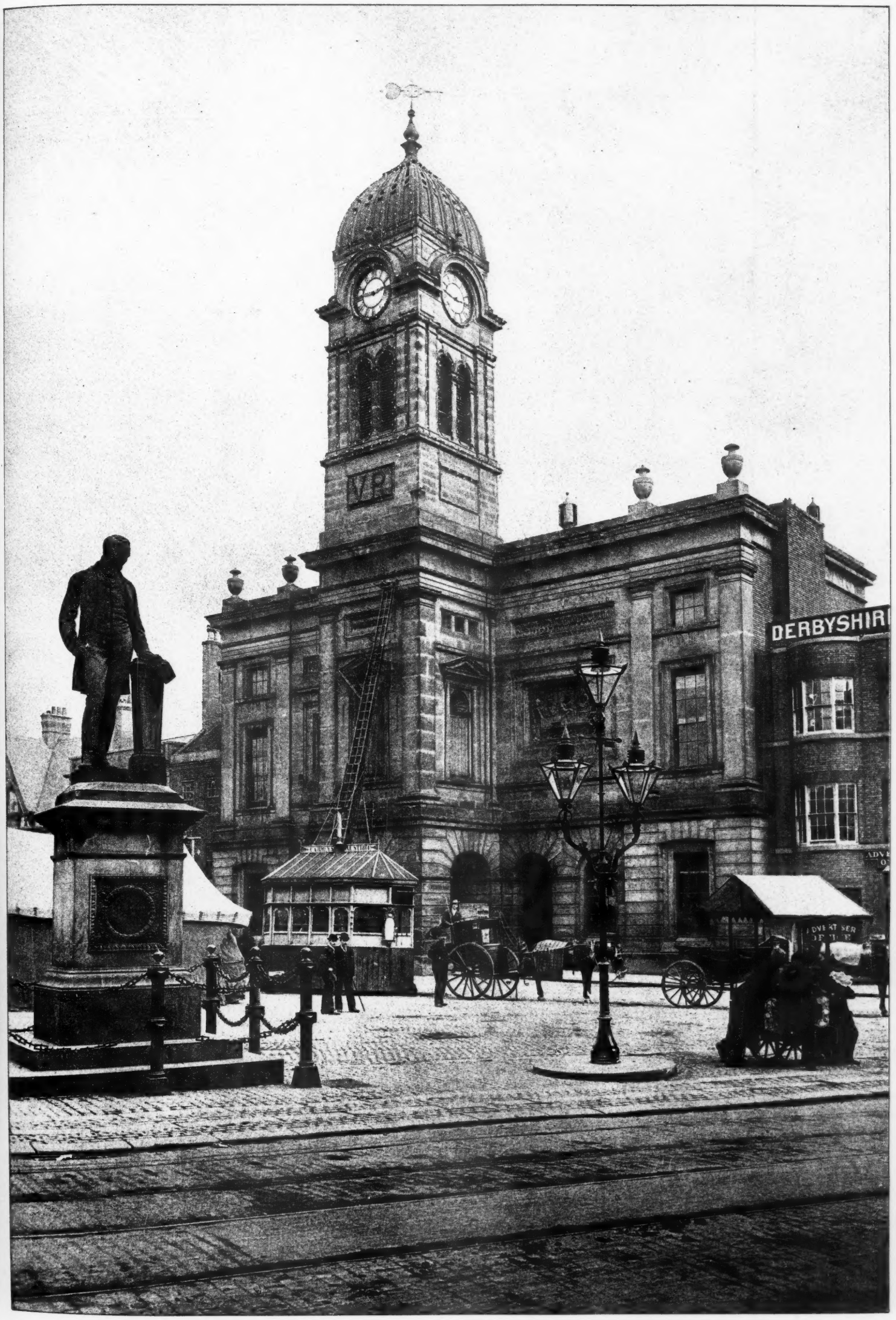

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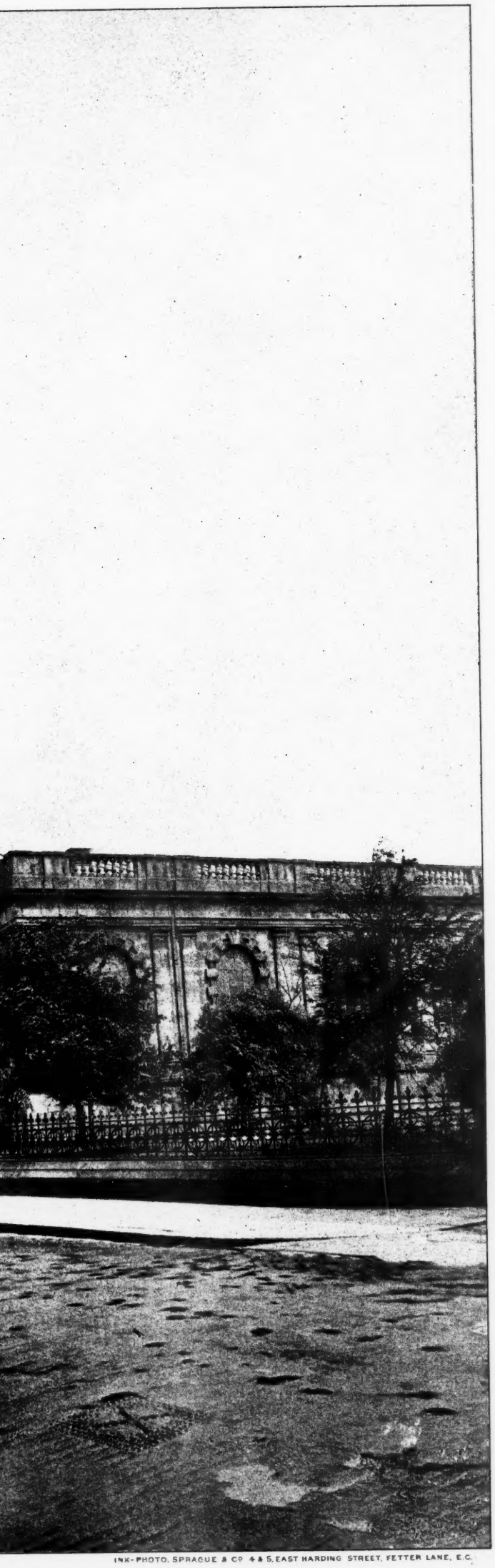

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